



# The Organizational Context

## Strategy, Structure, and Culture

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## Chapter Objectives

After completing this chapter, you should be able to:

1. Understand how effective project management contributes to achieving strategic objectives.
2. Recognize three components of the corporate strategy model: formulation, implementation, and evaluation.
3. See the importance of identifying critical project stakeholders and managing them within the context of project development.
4. Recognize the strengths and weaknesses of three basic forms of organizational structure and their implications for managing projects.
5. Understand how companies can change their structure into a “heavyweight project organization” structure to facilitate effective project management practices.
6. Identify the characteristics of three forms of project management office (PMO).
7. Understand key concepts of corporate culture and how cultures are formed.
8. Recognize the positive effects of a supportive organizational culture on project management practices versus those of a culture that works against project management.

## PROJECT MANAGEMENT BODY OF KNOWLEDGE CORE CONCEPTS COVERED IN THIS CHAPTER

1. Project Scope Management Initiation (PMBok sec. 5.1)
2. Procurement Planning (PMBok sec. 12.1)
3. Project Stakeholders (PMBok sec. 2.2)
4. Organizational Influences (PMBok sec. 2.3)
5. Organizational Structure (PMBok sec. 2.3.3)
6. Organizational Cultures and Styles (PMBok sec. 2.3.2)
7. Socio-Economic-Environmental Influences (PMBok sec. 2.5)

## PROJECT PROFILE

### Project Management Improves Lenovo's Bottom Line

The demand for and sales of personal computers seems to reach greater and greater heights. With global sales of PCs approaching 300 million units for 2008, the industry remains highly profitable but also highly competitive. Lenovo, owned by a Chinese corporation but headquartered in Raleigh, North Carolina, is one of the best known and most profitable PC manufacturers. Although its main revenues come from its PC line, Lenovo produces everything from storage devices and servers to printers, projectors, digital products, computing services, and mobile handsets. Lenovo acquired IBM's Personal Computing Division in May 2005 and has used this base as a springboard for rapid overseas expansion. In fact, the company has branch offices in 66 countries around the globe and conducts business in 166 countries, while employing more than 25,000 people worldwide. Sales outside of China account for approximately 60% of revenue.

Before 2004, competitors like Dell and Hewlett-Packard were having a difficult time making serious inroads into the Chinese market for PCs, ensuring that Lenovo could maintain a secure operating base within its own country. In the past five years, however, these rival PC makers have begun aggressive expansion into the Chinese market, resulting in direct threats to Lenovo's key business areas and leading the company to begin a series of steps in order to increase market share and improve business performance.

Since 2004, Lenovo has adopted the techniques of project management as a critical tool in maintaining competitiveness and to improve their strategic focus and decision making. In fact, it treated project management as the primary means for achieving their strategic goals, using the following steps:

First, after confirming the company's overall strategy, Lenovo set about organizing priority tasks that required multidepartment cooperation into projects, which it referred to as "strategic projects." These strategic projects were about expanding into new markets, solving underlying technical or administrative problems, improving efficiency, integrating resources and improving employee satisfaction. Second, Lenovo developed a Project Management Office (PMO), which was specifically designed to coordinate all its strategic projects. In this way, it created an institutional support service staffed with professional project managers for all the project groups within the company. Third, Lenovo set aside money specifically for implementing strategic plans. In the past, strategies were not financially supported; now, top management deliberately set aside money for this purpose.

Lenovo executives took another critical step in cementing the importance of project management by formally developing career paths within the company for project management. Currently, there are more than 100 full-time project managers in Lenovo, but nearly all staff have participated in some projects. Top talent was required to take the Project Management Institute's Project Management Professional (PMP) exam to demonstrate their mastery of the discipline. The PMP certification is a globally recognized standard for project management excellence. After Lenovo's acquisition of IBM's PC business, the company faced the challenge of blending the cultures and practices of two very different organizations. The managers found that using a common knowledge base, derived from the PMP certification, helped them create a shared vision and operating process for managing projects globally.

Lenovo's commitment to a project management philosophy has allowed it to dramatically influence and alter the company's strategic vision and operating culture. Its emphasis on project management has affected hiring decisions, team-based performance measures, speed to market, and global competitiveness. For 2007, Lenovo PC sales showed a significant jump past 20 million units sold, establishing the company as one of the top four manufacturers of personal computers worldwide.<sup>1</sup>

## INTRODUCTION

Within any organization, successful project management is contextual. What that means is that the *organization itself matters*—its culture, its structure, and its strategy each play an integral part and together they create the environment in which a project will flourish or founder. Issues that affect a project can vary widely from company to company. A project's connection to your organization's overall strategy, for example, the care with which you staff the team, and the goals you set for the project can be critical. Similarly, your organization's policies, structure, culture, and operating systems can work to support and promote project management or work against the ability to effectively run projects. Contextual issues provide the backdrop around which project activities must operate, so understanding what is beneath these issues truly contributes to understanding how to manage projects.

Before beginning a project, the project manager and team must be certain about the structure of the organization as it pertains to their project and the tasks they seek to accomplish. As clearly as possible, all reporting relationships must be specified, the rules and procedures that will govern the project must be established, and any issues of staffing the project team must be identified. Prior to the start of Operation Desert Storm in 1991, the U.S. and allied countries devoted an enormous amount of time and effort to develop a working relationship among all coalition members, ensuring that each group was given its assignments, understood its job, and recognized how the overall structure and management of the coalition was expected to proceed. Desert Storm illustrated the importance of clearly establishing an organizational structure before the start of integrated operations.

For many organizations, projects and project management practices are not the operating norm. In fact, as Chapter 1 discussed, projects typically exist outside of the formal, process-oriented activities associated with many organizations. As a result, many companies are simply not structured to allow for the successful completion of projects in conjunction with other ongoing corporate activities. The key challenge is discovering how project management may best be employed, regardless of the structure the company has adopted. What are the strengths and weaknesses of various structural forms and what are their implications for our ability to manage projects? This chapter will examine three of the most important contextual issues for project management: strategy, organizational structure, and culture. You will see how the variety of structural options can affect, either positively or negatively, the firm's ability to manage projects. The chapter will examine the concept of organizational culture and its roots and implications for effective project management.

## 2.1 PROJECTS AND ORGANIZATIONAL STRATEGY

**Strategic management** is the science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its **objectives**.<sup>2</sup> In this section we will consider the relevant components of this definition as they apply to project management. Strategic management consists of the following elements:

1. **Developing vision statements and mission statements.** Vision and mission statements establish a sense of what the organization hopes to accomplish or what top managers hope it will become at some point in the future. A corporate vision serves as a focal point for members of the organization who may find themselves pulled in multiple directions by competing demands. In the face of multiple expectations and even contradictory efforts, an ultimate vision can serve as a “tie breaker,” which is highly beneficial in establishing priorities. A sense of vision is also an extremely important source of motivation and purpose. As the Book of Proverbs points out: “Where there is no vision, the people perish” (Prov. 29:18). Many firms apply their vision or mission statement to evaluating new project opportunities as a first screening device. For example, Fluor-Daniel Corporation, a large construction organization, employs as its vision the goal of being “the preeminent leader in the global building and services marketplace by delivering world-class solutions.” Projects that do not support this vision are not undertaken.
2. **Formulating, implementing, and evaluating.** Projects, as the key ingredients in strategy implementation, play a crucial role in the basic process model of strategic management. A firm devotes significant time and resources to evaluating its business opportunities through developing a corporate vision or mission, assessing internal strengths and weaknesses as well as external opportunities and threats, establishing long-range objectives, and generating and selecting among various strategic alternatives. All these components relate to the formulation stage of strategy. Within this context, projects serve as the vehicles that enable companies to seize opportunities, capitalize on their strengths, and implement overall corporate objectives. New product development, for example, fits neatly into this framework. New products are developed and commercially introduced as a company’s response to business opportunities. Effective project management enables firms to efficiently and rapidly respond.
3. **Making cross-functional decisions.** Business strategy is a corporate-wide venture, requiring the commitment and shared resources of all functional areas to meet overall objectives. Cross-functional decision making is a critical feature of project management, as experts from various functional groups come together into a team of diverse personalities and backgrounds. Project management work is a natural environment in which to operationalize strategic plans.
4. **Achieving objectives.** Whether the organization is seeking market leadership through low-cost, innovative products, superior quality, or other means, projects are the most effective tools to allow objectives to be met. A key feature of project management is that it can potentially allow firms to be effective in the external market as well as internally efficient in operations; that is, it is a great vehicle for optimizing organizational objectives, whether they incline toward efficiency of production or product or process effectiveness.

Projects have been called the “stepping-stones” of corporate strategy.<sup>3</sup> This idea implies that an organization’s overall strategic vision is the driving force behind its project development. For example, 3M’s desire to be a leading innovator in business gives rise to the creation and management of literally hundreds of new product development projects within the multinational organization every year. Likewise, Rubbermaid Corporation is noted for its consistent pursuit of new product development and market introduction. The manner in which organization strategies affect new project introductions will be addressed in greater detail in our chapter on project selection (Chapter 3). Projects are the building blocks of strategies; they put an action-oriented face on the strategic edifice. Some examples of how projects operate as strategic building blocks are shown in Table 2.1. Each of the examples illustrates the underlying theme that projects are the “operational reality” behind strategic vision. In other words, they serve as the building blocks to create the reality a strategy can only articulate.

Another way to visualize how projects connect to organizational strategy is shown in Figure 2.1.<sup>4</sup> This model envisions a hierarchy where the mission is paramount, objectives more formally define the mission, and strategy, goals, and programs underlie the objectives. The figure importantly suggests that the various strategic elements must exist in harmony with each other; that is, the mission, objectives, strategies, goals, and programs must remain in alignment.<sup>5</sup> It would make little sense, for example, to create a vision of “an environmentally aware organization” if subsequent objectives and strategies aim at ecologically unfriendly policies.

**TABLE 2.1 Projects Reflect Strategy**

Strategy	Project
Technical or operating initiatives (such as new distribution strategies or decentralized plant operations)	Construction of new plants or modernization of facilities
Redevelopment of products for greater market acceptance	Reengineering projects
New business processes for greater streamlining and efficiency	Reengineering projects
Changes in strategic direction or product portfolio reconfiguration	New product lines
Creation of new strategic alliances	Negotiation with supply chain members (including suppliers and distributors)
Matching or improving on competitors' products and services	Reverse engineering projects
Improvement of cross-organizational communication and efficiency in supply chain relationships	Enterprise IT efforts
Promotion of cross-functional interaction, streamlining of new product or service introduction, and improvement of departmental coordination	Concurrent engineering projects

Figure 2.2 illustrates the strategic alignment between a firm's projects and its basic vision, objectives, strategies, and goals with concrete examples.<sup>6</sup> If, for example, a manufacturer of refrigeration equipment creates a vision statement that says, in part, that the company is in "the business of supplying system components to a worldwide nonresidential air conditioning market," this vision is clarified by specific strategic objectives: return on investment (ROI) expectation, dividend maintenance, and social responsibility. Supporting the base of the pyramid are strategies, goals, and programs. Here the firm's strategies are stated in terms of a three-phase approach: (1) concentrate on achieving objectives through existing markets and product lines, (2) focus on new market opportunities in foreign or restricted markets, and (3) pursue new products in existing markets. The organization clearly is intent on first maintaining existing product lines and markets before pursuing new product development and innovation.

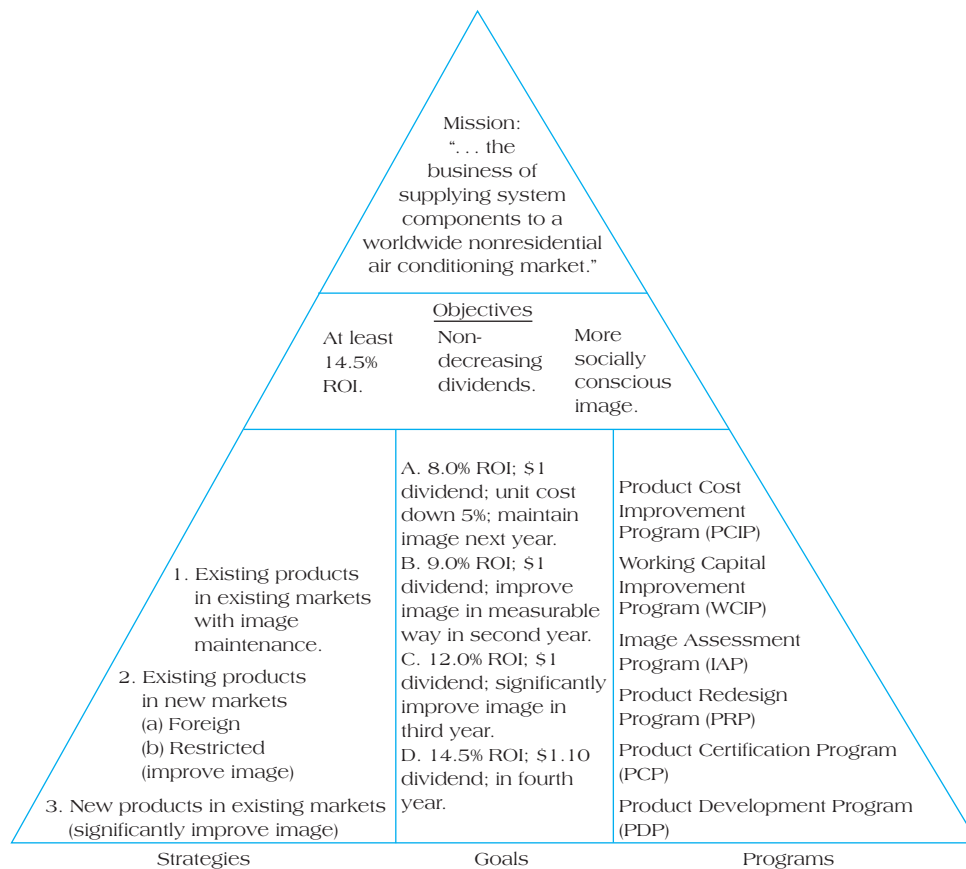
The goals, shown in the middle of the pyramid base, reflect a four-year plan based on the aforementioned strategies. Suppose that a firm's year one goals aim for an 8% return on investment, steady dividends, decreasing unit costs of production, and solid image maintenance. Goals for years two through four are progressively more ambitious, all based on supporting the three-phase strategy. Finally, the programs indicated at the right side of the pyramid in Figure 2.2 are the sources of the company's projects. Each program is typically a collection of supporting projects; hence, even the most basic activities of the company are conducted in support of the firm's strategic elements. To break this down, the Image Assessment Program (IAP) is made up of several supporting projects, including:

1. Customer Survey Project
2. Corporate Philanthropy Project

**FIGURE 2.1 Relationship of Strategic Elements**

Source: W. R. King. 1998. "The Role of Projects in the Implementation of Business Strategy," in D. I. Cleland and W. R. King (Eds.), *Project Management Handbook*. New York: Van Nostrand Reinhold, pp. 129–139. Reprinted with permission of John Wiley & Sons, Inc.





**FIGURE 2.2** Illustrating Alignment Between Strategic Elements and Projects

Source: W. R. King. 1998. "The Role of Projects in the Implementation of Business Strategy," in D. I. Cleland and W. R. King (Eds.), *Project Management Handbook*. New York: Van Nostrand Reinhold, pp. 129–139. Reprinted with permission of John Wiley & Sons, Inc.

3. Quality Assessment Project
4. Employee Relations Project

All these projects promote the Image Assessment Program, which in turn is just one supporting **program** in a series designed to achieve strategic goals. In this model, it is likely that several projects actually support multiple programs. For example, the Customer Survey Project can provide valuable information to the Product Redesign Program, as customer satisfaction data is fed back to the design department. Projects, as the building blocks of strategy, are typically initiated through the corporation's strategic purposes, deriving from a clear and logical sequencing of vision, objectives, strategies, and goals.



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An organization's strategic management is the first important contextual element in its project management approaches. Because projects form the building blocks that allow us to implement strategic plans, it is vital that there exist a clear sense of harmony, or complementarity, between strategy and projects that have been selected for development. In a later section, we will add to our understanding of the importance of creating the right context for projects by adding an additional variable into the mix: the organization's structure.

## 2.2 STAKEHOLDER MANAGEMENT

Organizational research and direct experience tell us that organizations and project teams cannot operate in ways that ignore the external effects of their decisions. One way to understand the relationship of project managers and their projects to the rest of the organization is through employing stakeholder analysis. **Stakeholder analysis** is a useful tool for demonstrating some of the seemingly irresolvable conflicts that occur through the planned creation and introduction of any new project. **Project stakeholders** are defined as all individuals or groups who have an active stake in the project and can potentially impact, either positively or negatively, its development.<sup>7</sup> Project stakeholder analysis, then, consists of formulating strategies to identify and, if necessary, manage for positive results the impact of stakeholders on the project. Stakeholders can affect and are affected by organizational actions to varying degrees.<sup>8</sup> In some cases, a corporation must take serious heed of the potential influence some stakeholder groups are capable of wielding. In other situations, a stakeholder group may have relatively little power to influence a company's activities but its presence may still require attention. Contrast, for example, the impact that the government has on regulating the tobacco industry's activities with the relative weakness of a small subcontractor working for Oracle on new software development. In the first case, the federal government has, in recent years, strongly limited the activities and sales strategies of the tobacco companies through the threat of regulation and litigation. On the other hand, Oracle, a large organization, can easily replace one small subcontractor with another.

Stakeholder analysis is helpful to the degree that it compels firms to acknowledge the potentially wide-ranging effect that their actions can have, both intended and unintended, on various stakeholder groups.<sup>9</sup> For example, the strategic decision to close an unproductive manufacturing facility may make good business sense in terms of costs versus benefits that the company derives from the manufacturing site. However, the decision to close the plant has the potential to unleash a torrent of stakeholder complaints in the form of protests from local unions, workers, community leaders in the town affected by the closing, political and legal challenges, environmental concerns, and so forth. Sharp managers will consider the impact of stakeholder reaction as they weigh the possible effects of their strategic decisions.

Just as stakeholder analysis is instructive for understanding the impact of major strategic decisions, project stakeholder analysis is extremely important when it comes to managing projects. The project development process itself can be directly affected by stakeholders. This relationship is essentially reciprocal in that the project team's activities can also affect external stakeholder groups.<sup>10</sup> Some common ways the client stakeholder group has an impact upon project team operations include agitating for faster development, working closely with the team to ease project transfer problems, and influencing top management in the parent organization to continue supporting the project. The project team can reciprocate this support through actions that show willingness to closely cooperate with the client in development and transition to user groups.

The nature of these various demands can place them seemingly in direct conflict. That is, in responding to the concerns of one stakeholder, project managers often unwittingly find themselves having offended or angered another stakeholder who has an entirely different agenda and set of expectations. For example, a project team working to install a new software application across the organization may go to such levels to ensure customer satisfaction that they engage in countless revisions of the package until they have, seemingly, made their customers happy. However, in doing so, the overall project schedule may now have slipped to the point where top management is upset by the cost and schedule overruns. In managing projects, we are challenged to find ways to balance a host of demands and still maintain supportive and constructive relationships with each important stakeholder group.

### Identifying Project Stakeholders

Internal stakeholders are a vital component in any stakeholder analysis, and their impact is usually felt in relatively positive ways; that is, while serving as limiting and controlling influences (in the case of the company accountant), for example, most internal stakeholders want to see the project developed successfully. On the other hand, some external stakeholder groups operate in manners that are quite challenging or even hostile to

project development. Consider the case of the recent series of spikes in the price of oil. With oil prices whipsawing in a range from \$50 to over \$140 per barrel during 2008, the impact on the global economy was severe. Many groups in the United States have advocated taking steps to lessen its dependence on foreign oil, including offshore exploration and the development of a new generation of nuclear power plants. Environmental groups, however, continue to oppose these steps, vowing to use litigation, political lobbying, and other measures to resist the development of these alternative energy sources. Cleland refers to these types of external stakeholders as **intervenor groups**, defined as groups external to the project but possessing the power to effectively intervene and disrupt the project's development.<sup>11</sup>

Among the set of project stakeholders that project managers must consider are:

#### Internal

- Top management
- Accountant
- Other functional managers
- Project team members

#### External

- Clients
- Competitors
- Suppliers
- Environmental, political, consumer, and other intervenor groups

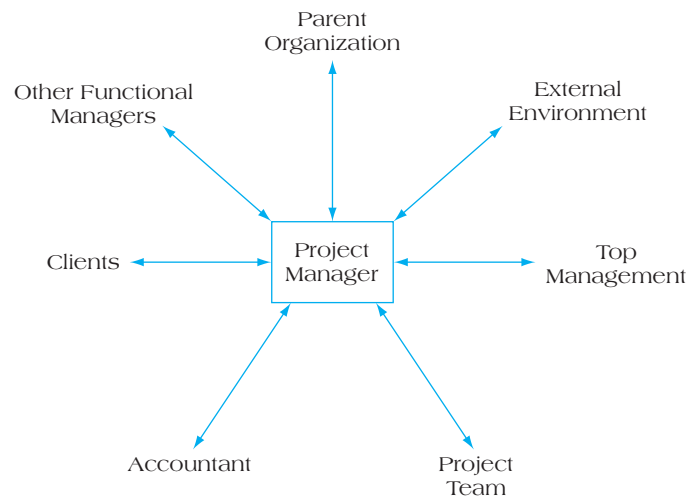
**CLIENTS** Our focus throughout this entire book will be on maintaining and enhancing client relationships. In most cases, for both external and internal clients, the project deals with an investment. Clients are concerned with receiving the project as quickly as they can possibly get it from the team, because the longer the project implementation, the longer the money invested sits without generating any returns. As long as costs are not passed on to them, clients seldom are overly interested in how much expense is involved in a project's development. The opposite is usually the case, however. Costs typically must be passed on, and customers are avidly interested in getting what they pay for. Also, many projects start before client needs are fully defined. Product concept screening and clarification are often made part of the project scope of work (see Chapter 5). These are two strong reasons why many customers seek the right to make suggestions and request alterations in the project's features and operating characteristics well into the schedule. The customer feels with justification that a project is only as good as it is acceptable and useful. This sets a certain flexibility requirement and requires willingness from the project team to be amenable to specification changes.

Another important fact to remember about dealing with client groups is that the term *client* does not in every case refer to the *entire* customer organization. The reality is often far more complex. A client firm consists of a number of internal interest groups, and in many cases they have different agendas. For example, a company can probably readily identify a number of distinct clients within the customer organization, including the top management team, engineering groups, sales teams, on-site teams, manufacturing or assembly groups, and so on. Under these normal circumstances it becomes clear that the process of formulating a stakeholder analysis of a customer organization can be a complex undertaking.

The challenge is further complicated by the need to communicate, perhaps using different business language, with the various customer stakeholder groups (see Figure 2.3.). Preparing a presentation to deal with the customer's engineering staff requires mastery of technical information and solid specification details. On the other hand, the finance and contractual people are looking for tightly presented numbers. Formulating stakeholder strategies requires you first to acknowledge the existence of these various client stakeholders, and then to formulate a coordinated plan for uncovering and addressing each group's specific concerns and learning how to reach them.

**COMPETITORS** Competitors can be an important stakeholder element because they are affected by the successful implementation of a project. Likewise, should a rival company bring a new product to market, the project team's parent organization could be forced to alter, delay, or even abandon its project. In assessing competitors as a project stakeholder group, project managers should try to uncover any information available about the status of a competitor's projects. Further, where possible, any apparent lessons a competitor may have learned can be a source of useful information for a project manager who is initiating a similar project. If





**FIGURE 2.3** Project Stakeholder Relationships

a number of severe implementation problems occurred within the competitor's project, that information could offer valuable lessons in terms of what to avoid.

**SUPPLIERS** As stated earlier, *suppliers* are any group that provides the raw materials or other resources the project team needs in order to complete the project. When projects require a significant supply of externally purchased components, the project manager needs to take every step possible to ensure steady deliveries. In most cases this is a two-way street. First, the project manager has to ensure that each supplier receives the input information necessary to implement its part of the project in a timely way. Second, he or she must monitor the deliveries so they are met according to plan. In the ideal case, the supply chain becomes a well-greased machine that automatically both draws the input information from the project team and delivers the products without excessive involvement of the project manager. For example, in large-scale construction projects, project teams daily must face and satisfy an enormous number of supplier demands. The entire discipline of supply-chain management is predicated on the ability to streamline logistics processes by effectively managing the project's supply chain.

**INTERVENOR GROUPS** Any environmental, political, social, community-activist, or consumer groups that can have a positive or negative effect on the project's development and successful launch are referred to as intervenor groups.<sup>12</sup> That is, they have the capacity to intervene in the project development and force their concerns to be included in the equation for project implementation. There are some classic examples of intervenor groups curtailing major construction projects, particularly in the nuclear power plant construction industry. As federal, state, and even local regulators decide to involve themselves in these construction projects, intervenors have at their disposal the legal system as a method for tying up or even curtailing projects. Prudent project managers need to make a realistic assessment of the nature of their projects and the likelihood that one intervenor group or another may make an effort to impose its will on the development process.

**TOP MANAGEMENT** In most organizations, top management holds a great deal of control over project managers and is in the position to regulate their freedom of action. Top management is, after all, the body that authorizes the development of the project through giving the initial "go" decision, sanctions additional resource transfers as they are needed by the project team, and supports and protects project managers and their teams from other organizational pressures. Top management requires that the project be timely (they want it out the door quickly), cost efficient (they do not want to pay more for it than they have to), and minimally disruptive to the rest of the functional organization.

**ACCOUNTING** The accountant's *raison d'être* in the functional organization is maintaining cost efficiency of the project teams. Accountants support and actively monitor project budgets and, as such, are sometimes perceived as the enemy by project managers. This perception is wrong minded. To be able to manage the project, to make the necessary decisions, and to communicate with the customer, the project manager has to stay on top of the cost of the project at all times. An efficient cost control and reporting mechanism is vital. Accountants perform an important administrative service for the project manager.

**FUNCTIONAL MANAGERS** Functional managers who occupy line positions within the traditional chain of command are an important stakeholder group to acknowledge. Most projects are staffed by individuals who are essentially on loan from their functional departments. In fact, in many cases, project team members may only have part-time appointments to the team; their functional managers may still expect a significant amount of work out of them per week in performing their functional responsibilities. This situation can create a good deal of confusion, conflict, and the need for negotiation between project managers and functional supervisors and lead to seriously divided loyalties among team members, particularly when performance evaluations are conducted by functional managers rather than the project manager. In terms of simple self-survival, team members often maintain closer allegiance to their functional group than to the project team.

Project managers need to appreciate the power of the organization's functional managers as a stakeholder group. Functional managers are not usually out to discourage project development. Rather, they have loyalty to their functional roles, and they act and use their resources accordingly, within the limits of the company's structure. Nevertheless, as a formidable stakeholder group, functional managers need to be treated with due consideration by project managers.

**PROJECT TEAM MEMBERS** The project team obviously has a tremendous stake in the project's outcome. Although some may have a divided sense of loyalty between the project and their functional group, in many companies the team members volunteered to serve on the project and are, hopefully, receiving the kind of challenging work assignments and opportunities for growth that motivate them to perform effectively. Project managers must understand that their projects' success depends upon the commitment and productivity of each member of the project team. Thus, their impact on the project is, in many ways, more profound than any other stakeholder group.

## Managing Stakeholders

Project managers and their companies need to recognize the importance of stakeholder groups and proactively manage with their concerns in mind. Block offers a useful framework of the political process that has fine application to stakeholder management.<sup>13</sup> In his framework, Block suggests six steps:

1. Assess the environment.
2. Identify the goals of the principal actors.
3. Assess your own capabilities.
4. Define the problem.
5. Develop solutions.
6. Test and refine the solutions.

**ASSESS THE ENVIRONMENT** Is the project relatively low-key or is it potentially so significant that it will likely excite a great deal of attention? For example, when EMC Corporation, a large computer manufacturer, began development of a new line of minicomputers and storage units with the potential for either great profits or serious losses, it took great care to first determine the need for such a product. Going directly to the consumer population with market research was the key to assessing the external environment. Likewise, one of the reasons Ford's Escape Hybrid is so popular was Ford's willingness to create project teams that included consumers in order to more accurately assess their needs prior to project development. Recognizing environmentally conscious consumers and their needs caused Ford to create an option of the SUV with a gasoline/electric hybrid engine.

**IDENTIFY THE GOALS OF THE PRINCIPAL ACTORS** As a first step in fashioning a strategy to defuse negative reaction, a project manager should attempt to paint an accurate portrait of stakeholder concerns. Fisher and Ury<sup>14</sup> have noted that the positions various parties adopt are almost invariably based on need. What, then, are the needs of each significant stakeholder group regarding the project? A recent example will illustrate this point. A small IT firm specializing in network solutions and software development recently contracted with a larger publishing house to develop a simulation for college classroom use. The software firm was willing to negotiate a lower-than-normal price for the job because the publisher suggested that excellent performance on this project would lead to future business. The software organization, interested in follow-up business, accepted the lower fee because its more immediate needs were to gain entry into publishing and develop long-term customer contacts. The publisher needed a low price; the software developer needed new market opportunities.

Project teams must look for hidden agendas in goal assessment. It is common for departments and stakeholder groups to exert a set of overt goals that are relevant, but often illusionary.<sup>15</sup> In haste to satisfy these overt or espoused goals, a common mistake is to accept these goals on face value, without looking into the needs that may drive them or create more compelling goals. Consider, for example, a project in a large,

project-based manufacturing company to develop a comprehensive project management scheduling system. The project manager in charge of the installation approached each department head and believed that he had secured their willingness to participate in creating a scheduling system centrally located within the project management division. Problems developed quickly, however, because IT department members, despite their public professions of support, began using every means possible to covertly sabotage the implementation of the system, delaying completion of assignments and refusing to respond to user requests. What was their concern? They believed that placing a computer-generated source of information anywhere but in the IT department threatened their position as the sole disseminator of information. In addition to probing the overt goals and concerns of various stakeholders, project managers must look for hidden agendas and other sources of constraint on implementation success.

**ASSESS YOUR OWN CAPABILITIES** As Robert Burns said, “Oh wad some Power the giftie gie us/To see oursels as ithers see us!” Organizations must consider what they do well. Likewise, what are their weaknesses? Do the project manager and her team have the political savvy and a sufficiently strong bargaining position to gain support from each of the stakeholder groups? If not, do they have connections to someone who can? Each of these questions is an example of the importance of the project team understanding its own capacities and capabilities. For example, not everyone has the contacts to upper management that may be necessary for ensuring a steady flow of support and resources. If you realistically determine that political acumen is not your strong suit, then the solution may be to find someone who has these skills to help you.

**DEFINE THE PROBLEM** We must seek to define problems both in terms of our perspectives, as well as considering the valid concerns of the other party. The key to developing and maintaining strong stakeholder relationships lies in recognizing that different parties can have very different but equally legitimate perspectives on a problem. When we define problems, not just from our viewpoint but also trying to understand how this same issue may be perceived by our stakeholders, we start operating in a “win-win” mode. Further, we must be as precise as possible, staying focused on the specifics of the problem, not generalities. The more accurately and honestly we can define the problem, the better able we will be to create meaningful solution options.

**DEVELOP SOLUTIONS** There are two important points to note about this step. First, developing solutions means precisely that: creating an action-plan to address, as much as possible, the needs of the various stakeholder groups in relation to the other stakeholder groups. This step constitutes the stage in which the project manager, together with the team, seeks to manage the political process. What will work in dealing with top management? In implementing that strategy, what reaction am I likely to elicit from the accountant? The client? The project team? Asking these questions helps the project manager develop solutions that acknowledge the interrelationships of each of the relevant stakeholder groups. The discussion of power, political behavior, influence, and negotiation will be discussed in greater detail in Chapter 6.

As a second point, it is necessary that we do our political homework prior to developing solutions.<sup>16</sup> Note the late stage at which this step is introduced. Project managers can fall into a trap if they attempt to manage a process with only fragmentary or inadequate information. The philosophy of “ready, fire, aim” is sometimes common with stakeholder management. The result is a stage of perpetual firefighting during which the project manager is a virtual pendulum, swinging from crisis to crisis. Pendulums and these project managers share one characteristic: They never reach a goal. The process of putting out one fire always seems to create a new blaze.

**TEST AND REFINE THE SOLUTIONS** Implementing the solutions implies acknowledging that the project manager and team are operating under imperfect information. You may assume that stakeholders will react to certain initiatives in predictable ways. Of course, such assumptions can be erroneous. In testing and refining solutions, the project manager and team should realize that solution implementation is an iterative process. You make your best guesses, test for stakeholder reactions, and reshape your strategies accordingly. Along the way, many of your preconceived notions about the needs and biases of various stakeholder groups must be refined as well. In some cases, you made accurate assessments. At other times, your suppositions may have been dangerously naive or disingenuous. Nevertheless, this final step in the stakeholder management process forces the project manager to perform a critical self-assessment. It requires the flexibility to make accurate diagnoses and appropriate midcourse corrections.

When done well, these six steps form an important method for acknowledging the role that stakeholders play in successful project implementation. They allow project managers to approach “political stakeholder management” much as they would any other form of problem solving, recognizing it as a multivariate problem as various stakeholders interact with the project and with one another. Solutions to political stakeholder management can then be richer, more comprehensive, and more accurate.



**FIGURE 2.4** Project Stakeholder Management Cycle

Source: D. I. Cleland. 1998. "Project Stakeholder Management," in D. I. Cleland and W. R. King (Eds.), *Project Management Handbook*, Second Edition, pp. 275–301. New York: Van Nostrand Reinhold. Reprinted with permission of John Wiley & Sons, Inc.

An alternative, simplified stakeholder management process consists of planning, organizing, directing, motivating, and controlling the resources necessary to deal with the various internal and external stakeholder groups. Figure 2.4 shows a model as suggested by Cleland<sup>17</sup> that illustrates the management process within the framework of stakeholder analysis and management. Cleland notes that the various stakeholder management functions are interlocked and repetitive; that is, this cycle is recurring. As you identify and adapt to stakeholder threats, you develop plans to better manage the challenges they pose. In the process of developing and implementing these plans, you are likely to uncover new stakeholders whose demands must also be considered. Further, as the environment changes or as the project enters a new stage of its life cycle, you may be required to cycle through the stakeholder management model again to verify that your old management strategies are still effective. If, on the other hand, you deem that new circumstances make it necessary to alter those strategies, you must work through this stakeholder management model anew to update the relevant information.

## 2.3 ORGANIZATIONAL STRUCTURE

The word *structure* implies organization. People who work in an organization are grouped so that their efforts can be channeled for maximum efficiency. **Organizational structure** consists of three key elements:<sup>18</sup>

1. **Organizational structure designates formal reporting relationships, including the number of levels in the hierarchy and the span of control of managers and supervisors.** Who reports to whom in the structural hierarchy? This is a key component of a firm's structure. A span of control determines the number of subordinates directly reporting to each supervisor. In some structures, a manager may have a wide span of control, suggesting a large number of subordinates, while other structures mandate narrow spans of control and few individuals reporting directly to any supervisor. For some companies, the reporting relationship may be rigid and bureaucratic; other firms require flexibility and informality across hierarchical levels.
2. **Organizational structure identifies the grouping together of individuals into departments and departments into the total organization.** How are individuals collected into larger groups? Starting

with the smallest, units of a structure continually recombine with other units to create larger groups, or organizations of individuals. These groups, referred to as departments, may be grouped along a variety of different logical patterns. For example, among the most common reasons for creating departments are: (1) *function*—grouping people performing similar activities into similar departments, (2) *product*—grouping people working on similar product lines into departments, (3) *geography*—grouping people within similar geographical regions or physical locations into departments, and (4) *project*—grouping people involved in the same project into a department. We will discuss some of these more common departmental arrangements in detail later in this chapter.

3. **Organizational structure includes the design of systems to ensure effective communication, coordination, and integration of effort across departments.** This third feature of organizational structure refers to the supporting mechanisms the firm relies on to reinforce and promote its structure. These supporting mechanisms may be simple or complex. In some firms, a method for ensuring effective communication is simply to mandate, through rules and procedures, the manner in which project team members must communicate with one another and the types of information they must routinely share. Other companies use more sophisticated or complex methods for promoting coordination, such as the creation of special project offices apart from the rest of the company where project team members work for the duration of the project. The key thrust behind this third element in organizational structure implies that simply creating a logical ordering or hierarchy of personnel for an organization is not sufficient unless it is also supported by systems that ensure clear communication and coordination across the departments.

It is also important to note that within the project management context two distinct structures operate simultaneously, and both affect the manner in which the project is accomplished. The first is the overall structure of the organization that is developing the project. This structure consists of the arrangement of all units or interest groups participating in the development of the project; it includes the project team, the client, top management, functional departments, and other relevant stakeholders. The second structure at work is the internal structure of the project team; it specifies the relationship between members of the project team, their roles and responsibilities, and their interaction with the project manager. The majority of this chapter examines the larger structure of the overall organization and how it pertains to project management. The implications of internal project team structure will be discussed here but explored more thoroughly in Chapter 6.

## 2.4 FORMS OF ORGANIZATIONAL STRUCTURE

Organizations can be structured in an infinite variety of ways, ranging from highly complex to extremely simple. What is important to understand is that typically, the structure of an organization does not happen by chance; it is the result of a reasoned response to forces acting on the firm. A number of factors routinely affect the reasons why a company is structured the way it is. Operating environment is among the most important determinants or factors influencing an organization's structure. An organization's **external environment** consists of all forces or groups outside the organization that have the potential to affect the organization. Some elements in a company's external environment that can play a significant role in a firm's activities are competitors, customers in the marketplace, the government and other legal or regulatory bodies, general economic conditions, pools of available human or financial resources, suppliers, technological trends, and so forth. In turn, these organizational structures, often created for very sound reasons in relation to the external environment, have a strong impact on the manner in which projects are best managed within the organization. As we will see, each organization type offers its own benefits and drawbacks as a context for creating projects.

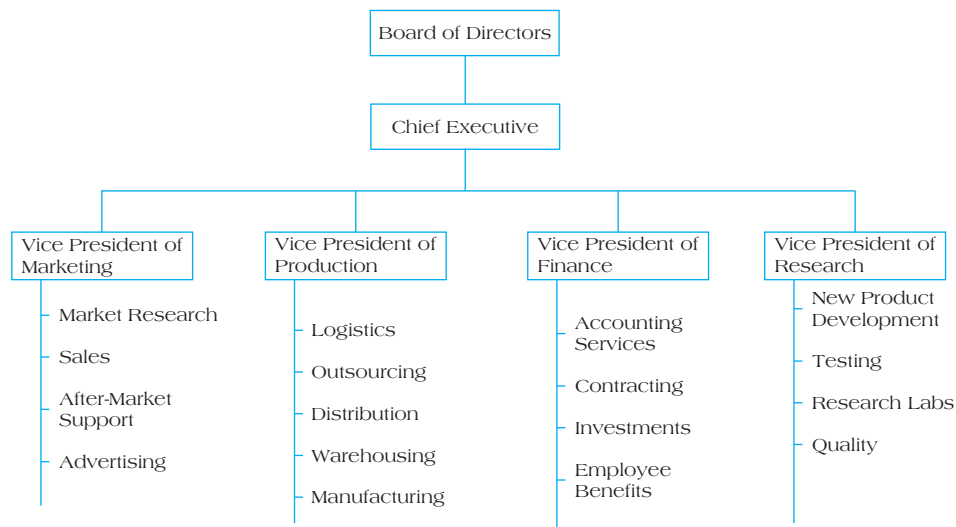
Some common structural types classify the majority of firms. These structure types include the following:

1. **Functional organizations**—Companies are structured by grouping people performing similar activities into departments.
2. **Project organizations**—Companies are structured by grouping people into project teams on temporary assignments.
3. **Matrix organizations**—Companies are structured by creating a dual hierarchy in which functions and projects have equal prominence.

### Functional Organizations

The **functional structure** is probably the most common organizational type used in business today. The logic of the functional structure is to group people and departments performing similar activities into units. In the



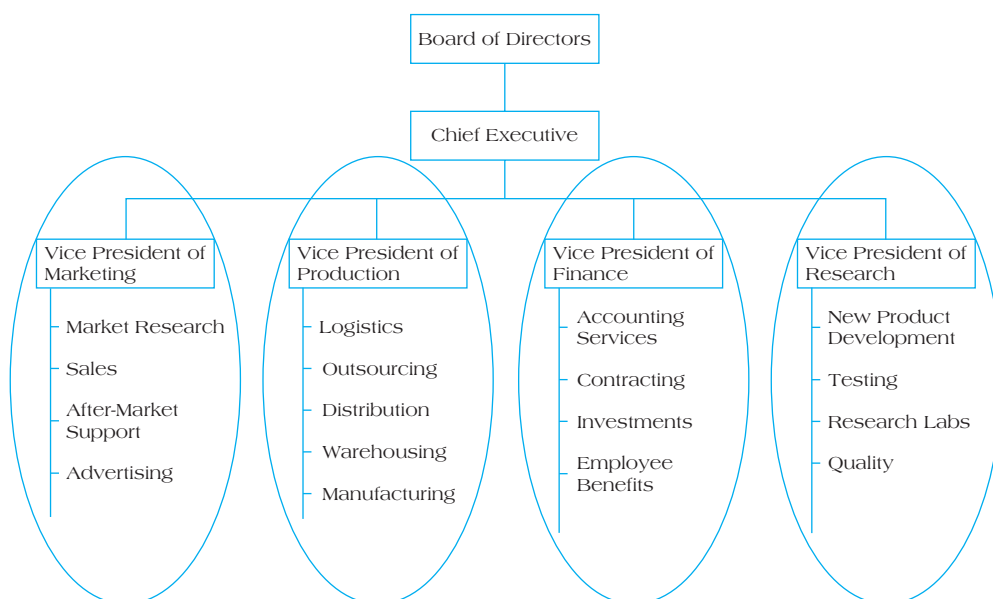


**FIGURE 2.5** Example of a Functional Organizational Structure

functional structure, it is common to create departments such as accounting, marketing, or research and development. Division of labor in the functional structure is not based on the type of product or project supported, but rather according to the type of work performed. In an organization having a functional structure, members routinely work on multiple projects or support multiple product lines simultaneously.

Figure 2.5 shows an example of a functional structure. Among the clear strengths of the functional organization is efficiency; when every accountant is a member of the accounting department, it is possible to more efficiently allocate the group's services throughout the organization, account for each accountant's work assignments, and ensure that there is no duplication of effort or unused resources. Another advantage is that it is easier to maintain valuable intellectual capital when all expertise is consolidated under one functional department. When you need an expert on offshore tax implications for global outsourced projects, you do not have to conduct a firm-wide search but can go right to the accounting department to find a resident expert.

The most common weakness in a functional structure from a project management perspective relates to the tendency for employees organized this way to become fixated on their concerns and work assignments to the exclusion of the needs of other departments. This idea has been labeled *functional siloing*, named for the silos found on farms (see Figure 2.6). Siloing occurs when similar people in a work group are unwilling or



**FIGURE 2.6** The Siloing Effect Found in Functional Structures



unable to consider alternative viewpoints, collaborate with other groups, or work in cross-functional ways. For example, within Data General Corporation, prior to its acquisition by EMC, squabbles between engineering and sales were constant. The sales department complained that its input to new product development was minimized as the engineering department routinely took the lead on innovation without meaningful consultation with other departments. Another weakness of functional structure is a generally poor responsiveness to external opportunities and threats. Communication channels tend to run up and down the hierarchy, rather than across functional boundaries. This vertical hierarchy can overload, and decision making takes time. Functional structures also may not be very innovative due to the problems inherent in the design. With siloed functional groups typically having a restricted view of the overall organization and its goals, it is difficult to achieve the cross-functional coordination necessary to innovate or respond quickly to market opportunities.

For project management, an additional weakness of the functional structure is that it provides no logical location for a central project management function. Top management may assign a project and delegate various components of that project to specialists within the different functional groups. Overall coordination of the project, including combining the efforts of the different functions assigned to perform project tasks, must then occur at a higher, top management level. A serious drawback for running projects in this operating environment is that they often must be *layered*, or applied on top of the ongoing duties of members of functional groups. The practical effect is that individuals whose main duties remain within their functional group are assigned to staff projects; when employees owe their primary allegiance to their own department, their frame of reference can remain functional. Projects can be temporary distractions in this sense, taking time away from “real work.” This can explain some of the behavioral problems that occur in running projects, such as low team member motivation or the need for extended negotiations between project managers and department supervisors for personnel to staff project teams.

Another project-related problem of the functional organization is the fact that it is easy to suboptimize the project’s development.<sup>19</sup> When the project is developed as the brainchild of one department, that group’s efforts may be well considered and effective. In contrast, departments not as directly tied to or interested in the project may perform their duties to the minimum possible level. A successful project-based product or service requires the fully coordinated efforts of all functional groups participating in and contributing to the project’s development.

Another problem is that customers are not the primary focus of everyone within the functionally structured organization. The customer in this environment might be seen as someone else’s problem, particularly among personnel whose duties tend to be supportive. Customer requirements must be met, and projects must be created with a customer in mind. Any departmental representatives on the project team who have not adopted a “customer-focused” mind-set add to the possibility of the project coming up short.

Summing up the functional structure (see Table 2.2), as it relates to the external environment, the functional organization structure is well suited to firms with relatively low levels of external uncertainty because their stable environments do not require rapid adaptation or responsiveness. When the environment is relatively predictable, the functional structure works well, because it emphasizes efficiency. Unfortunately, project management activities within the functionally organized firm can often be problematic when they are

**TABLE 2.2 Strengths and Weaknesses of Functional Structures**

Strengths for Project Management	Weaknesses for Project Management
1. Projects are developed within the basic functional structure of the organization, requiring no disruption or change to the firm’s design.	1. Functional siloing makes it difficult to achieve cross-functional cooperation.
2. Enables the development of in-depth knowledge and intellectual capital.	2. Lack of customer focus.
3. Allows for standard career paths. Project team members only perform their duties as needed while maintaining maximum connection with their functional group.	3. Projects generally take longer to complete due to structural problems, slower communication, lack of direct ownership of the project, and competing priorities among the functional departments.
	4. Projects may be suboptimized due to varying interest or commitment across functional boundaries.

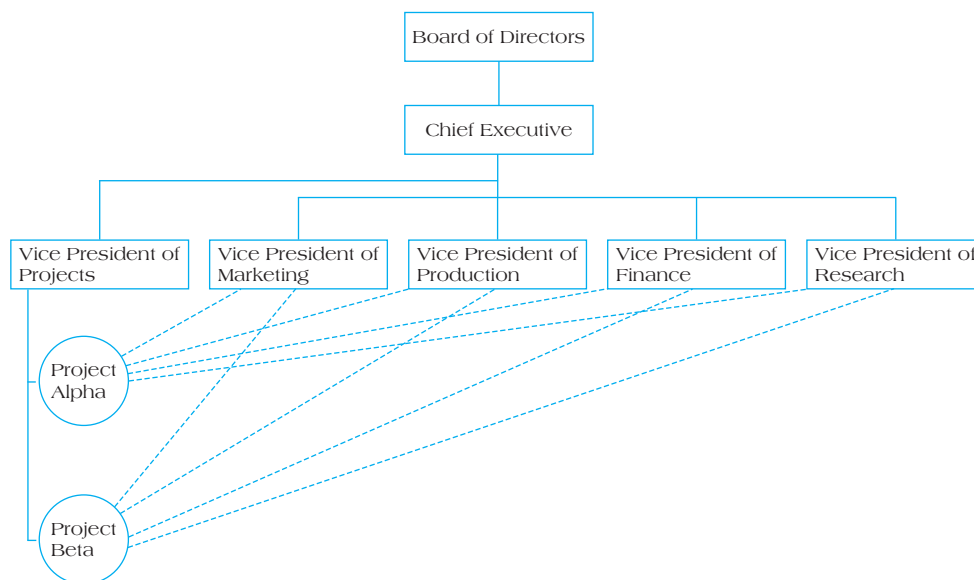
applied in settings for which this structure's strengths are not well suited. As the above discussion indicates, although there are some ways in which the functional structure can be advantageous to managing projects, in the main, it is perhaps the poorest when it comes to getting the maximum performance out of project management assignments.<sup>20</sup>

## Project Organizations

**Project organizations** are those that are set up with their exclusive focus aimed at running projects. Construction companies, large manufacturers such as Boeing or Airbus, pharmaceutical firms, and many software consulting and research and development organizations are all firms that are organized as pure project organizations. Within the project organization, each project is a self-contained business unit within the organization with a dedicated project team. The firm assigns resources from functional pools directly to the project for the time period they are needed. In the project organization, the project manager has sole control over the resources the unit uses. The functional departments' chief role is to coordinate with project managers and ensure that there are sufficient resources available for them as they need them.

Figure 2.7 illustrates a simple form of the pure **project structure**. Projects Alpha and Beta have been formed and are staffed by project team members from the company's functional groups. The project manager is the leader of the project and the staff all report to her. The staffing decisions and duration of employees' tenure with the project are left up to the discretion of the project manager, who is the chief point of authority for the project. As the figure suggests, there are several advantages to the use of a pure project structure.

- First, the project manager does not occupy a subordinate role in this structure. All major decisions and authority remain under the control of the project manager.
- Second, the functional structure and its potential for siloing or communication problems are bypassed. As a result, communication improves across the organization and within the project team. Because authority remains with the project manager and the project team, decision making is speeded up. Project decisions can occur quickly, without lengthy delays as functional groups are consulted or allowed to veto project team decisions.
- Third, this organization type promotes the expertise of a professional cadre of project management professionals. Because the focus for operations within the organization is project based, everyone within the organization understands and operates with the same focus, ensuring that the organization maintains highly competent project management resources.
- Finally, the pure project structure encourages flexibility and rapid response to environmental opportunities. Projects are created, managed, and disbanded routinely; therefore, the ability to create new project teams as needed is common and quickly undertaken.



**FIGURE 2.7** Example of a Project Organizational Structure

**TABLE 2.3 Strengths and Weaknesses of Project Structures**

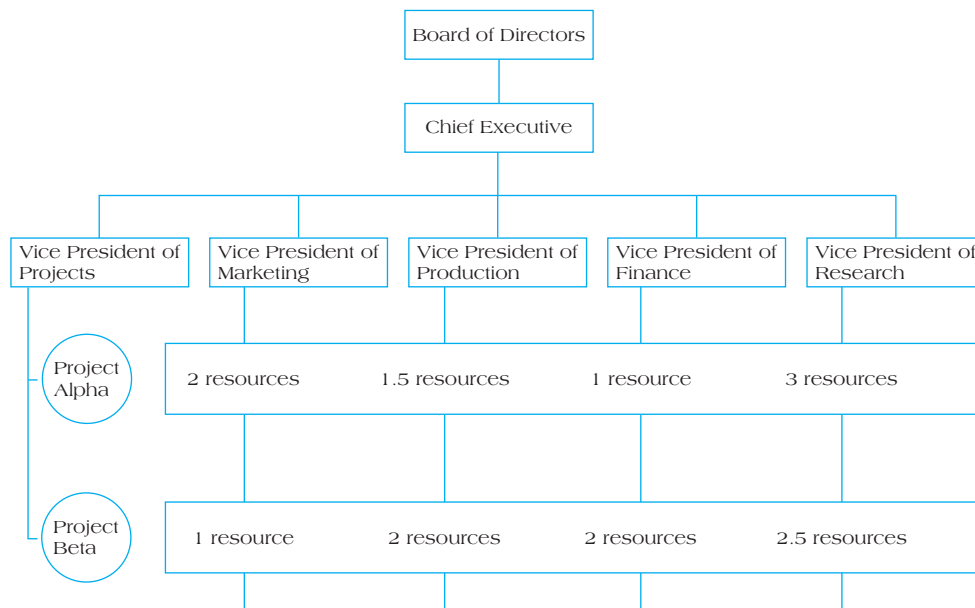
Strengths for Project Management	Weaknesses for Project Management
1. Assigns authority solely to the project manager.	1. Setting up and maintaining teams can be expensive.
2. Leads to improved communication across the organization and among functional groups.	2. Potential for project team members to develop loyalty to the project rather than to the overall organization.
3. Promotes effective and speedy decision making.	3. Difficult to maintain a pooled supply of intellectual capital.
4. Promotes the creation of cadres of project management experts.	4. Concern among project team members about their future once the project ends.
5. Encourages rapid response to market opportunities.	

Although there are a number of advantages in creating dedicated project teams using a project structure (see Table 2.3), this design does have some disadvantages that should be considered.

- First, the process of setting up and maintaining a number of self-contained project teams can be expensive. Rather than the different functional groups controlling their resources, they must provide them on a full-time basis to the different projects being undertaken at any point. This can result in forcing the project organization to hire more project specialists (e.g., engineers) than they might need otherwise, with a resulting loss of economies of scale.
- Second, the potential for inefficient use of resources is a key disadvantage of the pure project organization. Organization staffing may fluctuate up and down as the number of projects in the firm increases or decreases. Hence, it is possible to move from a state in which many projects are running and organizational resources are fully employed to one in which only a few projects are in the pipeline, with many resources underutilized. In short, manpower requirements across the organization can increase or decrease rapidly, making staffing problems severe.
- Third, it is difficult to maintain a supply of technical or intellectual capital: one of the advantages of the functional structure. Because resources do not typically reside within the functional structure for long, it is common for them to shift from project to project, preventing the development of a pooled knowledge base. For example, it is common for many project organizations to hire technically proficient contract employees for various project tasks. They may perform their work and, when finished, their contract is terminated and they leave the organization, taking their expertise with them. Expertise resides not within the organization, but differentially within the functional members who are assigned to the projects. Hence, some team members may be highly knowledgeable while others are not sufficiently trained and capable.
- A fourth problem with the pure project form has to do with the legitimate concerns of project team members as they anticipate the completion of the project. What, they wonder, will be in their future once their project is completed? As noted above, staffing can be inconsistent, and there are often cases where project team members finish a project only to discover that they are not needed for new assignments. Functional specialists in project organizations do not have the kind of permanent “home” that they would have in a functional organization, so their concerns are justified. In a similar manner, it is common in pure project organizations for project team members to identify with the project as their sole source of loyalty. Their emphasis is project based and their interests reside not with the larger organization, but within their own project. When a project is completed, they may begin searching for new challenges, even leaving the company for appealing new assignments.

## Matrix Organizations

One of the more innovative organization designs to emerge in the past 30 years has been the **matrix structure**. The **matrix organization**, which is a combination of functional and project activities, seeks a balance between the functional organization and the pure project form. The way it achieves this balance is to emphasize both function and project focuses at the same time. In practical terms, the matrix structure creates a *dual hierarchy* in which there is a balance of authority between the project emphasis and the firm’s functional departmentalization. Figure 2.8 illustrates how a matrix organization is set up; note that the vice president for projects occupies a



**FIGURE 2.8** Example of a Matrix Organizational Structure

unique reporting relationship in that the position is not formally part of the organization's functional department structure. The vice president is the head of the projects division and occupies one side of the dual hierarchy, a position shared with the CEO and heads of functional departments.

Figure 2.8 also provides a look at how the firm staffs project teams. The vice president of projects controls the activities of the project managers under his authority. They, however, must work closely with functional departments to staff their project teams through loans of personnel from each functional group. Whereas in functional organizations project team personnel are still almost exclusively under the control of the functional departments and to some degree serve at the pleasure of their functional boss, in the matrix organizational structure these personnel are shared by both their departments and the project to which they are assigned. They remain under the authority of both the project manager and their functional department supervisor. Notice, for example, that the project manager for Project Alpha has negotiated the use of two **resources** (personnel) from the vice president of marketing, 1.5 resources from production, and so forth. Each project and project manager is responsible for working with the functional heads to determine the optimal staffing needs, how many people are required to perform necessary project activities, and when they will be available. Questions such as "What tasks must be accomplished on this project?" are best answered by the project manager. However, other equally important questions, such as "Who will perform the tasks?" and "How long should the tasks take?" are matters that must be jointly negotiated between the project manager and the functional department head.

It is useful to distinguish between two common forms of the matrix structure: the **weak matrix** (sometimes called the *functional matrix*) and the **strong matrix** (sometimes referred to as a *project matrix*). In a weak matrix, functional departments maintain control over their resources and are responsible for managing their components of the project. The project manager's role is to coordinate the activities of the functional departments, but to do so typically as an administrator. She is expected to prepare schedules, update project status, and serve as the link between the departments with their different project deliverables, but she does not have direct authority to control resources or make significant decisions on her own. In a strong matrix, the balance of power has shifted in favor of the project manager. She now controls most of the project activities and functions, including the assignment and control of project resources, and has key decision-making authority. Although functional managers have some input into the assignment of personnel from their departments, their role is mostly consultative. The strong matrix is probably the closest to a "project organization" mentality that we can get while working within a matrix environment.

Creating an organizational structure with two bosses may seem awkward, but there are some important advantages to this approach, provided certain conditions are met. Matrix structures are useful under circumstances in which:<sup>21</sup>

1. **There is pressure to share scarce resources across product or project opportunities.** When an organization has scarce human resources and a number of project opportunities, it faces the challenge

of using its people and material resources as efficiently as possible to support the maximum number of projects. A matrix structure provides an environment in which the company can emphasize efficient use of resources for the maximum number of projects.

2. **There is a need to emphasize two or more different types of output.** For example, the firm may need to promote its technical competence (using a functional structure) while continually creating a series of new products (requiring a project structure). With this dual pressure for performance, there is a natural balance in a matrix organization between the functional emphasis on technical competence and efficiency and the project focus on rapid new product development.
3. **The environment of the organization is complex and dynamic.** When firms face the twin challenges of complexity and rapidly shifting environmental pressures, the matrix structure promotes the exchange of information and coordination across functional boundaries.

In the matrix structure, the goal is to create a simultaneous focus on both the need to be quickly responsive to external opportunities and internal operating efficiencies. In order to achieve this dual focus, equal authority must reside within both the projects and functional groups. One advantage of the matrix structure for managing projects is that it places project management parallel to functional departments in authority. This advantage highlights the enhanced status of the project manager in this structure, who is expected to hold a similar level of power and control over resources as department managers. Another advantage is that the matrix is specifically tailored to encourage the close coordination between departments, with an emphasis on producing projects quickly and efficiently while sharing resources among projects as they are needed. Unlike the functional structure, in which projects are, in effect, layered over a structure that is not necessarily supportive of their processes, the matrix structure balances the twin demands of external responsiveness and internal efficiency, creating an environment in which projects can be performed expeditiously. Finally, because resources are shared and “movable” among multiple projects, there is a greater likelihood that expertise will not be hoarded or centered on some limited set of personnel, as in the project organization, but diffused more widely across the firm.

Among the disadvantages of the matrix structure’s dual hierarchy is the potentially negative effect that creating multiple authority points has on operations. When two parts of the organization share authority, the workers caught in between can experience great frustration when they receive mixed or conflicting messages from the head of the project group and the heads of functional departments. Suppose that the vice president for projects signaled the need for workers to concentrate their efforts on a critical project with a May 1 deadline. If, at the same time, the head of finance were to tell his staff that with tax season imminent, it was necessary for his employees to ignore projects for the time being to finish tax-related work, what might happen? From the team member’s perspective, this dual hierarchy can be very frustrating. Workers daily experience a sense of being pulled in multiple directions as they receive conflicting instructions from their bosses—both on projects and in their departments. Consequently, ordinary work often becomes a balancing act based on competing demands for their time.

Another disadvantage is the amount of time and energy required by project managers in meetings, negotiations, and other coordinative functions to get decisions made across multiple groups, often with different agendas. Table 2.4 summarizes the strengths and weaknesses of the matrix structure.

Matrix structures, as great a solution they may seem for project management, require that a great deal of time be spent coordinating the use of human resources. Many project managers comment that as part of

**TABLE 2.4 Strengths and Weaknesses of Matrix Structures**

Strengths for Project Management	Weaknesses for Project Management
1. Suited to dynamic environments.	1. Dual hierarchies mean two bosses.
2. Emphasizes the dual importance of project management and functional efficiency.	2. Requires significant time to be spent negotiating the sharing of critical resources between projects and departments.
3. Promotes coordination across functional units.	3. Can be frustrating for workers caught between competing project and functional demands.
4. Maximizes scarce resources between competing project and functional responsibilities.	



the matrix, they devote a large proportion of their time to meetings, to resolving or negotiating resource commitments, and to finding ways to share power with department heads. The matrix structure offers some important benefits and drawbacks from the perspective of managing projects. It places project management on an equal status footing with functional efficiency and promotes cross-functional coordination. At the same time, however, the dual hierarchy results in some significant behavioral challenges as authority and control within the organization are constantly in a state of flux.<sup>22</sup> A common complaint from project managers operating in matrix organizations is that an enormous amount of their time is taken up with “playing politics” and bargaining sessions with functional managers to get the resources and help they need. In a matrix, negotiation skills, political savvy, and networking become vital tools for project managers who want to be successful.

## Moving to Heavyweight Project Organizations

The term **heavyweight project organization** refers to the belief that organizations can sometimes gain tremendous benefit from creating a fully dedicated project organization.<sup>23</sup> The heavyweight project organization concept is based on the notion that successful project organizations do not happen by chance or luck. Measured steps in design and operating philosophy are needed to get to the top and remain there. Taking their formulation from the “Skunkworks” model, named after the famous Lockheed Corporation programs, autonomous project teams represent the final acknowledgement by the firm of the priority of project-based work in the company. In these organizations, the project manager is given full authority, status, and responsibility to ensure project success. Functional departments are either fully subordinated to the projects or the project teams are accorded an independent resource base with which to accomplish their tasks.

In order to achieve the flexibility and responsiveness that the heavyweight organization can offer, it is important to remember some key points. First, no one goes directly to the autonomous team stage when it comes to running projects. This project organizational form represents the last transitional stage in a systematically planned shift in corporate thinking. Instead, managers gradually move to this step through making conscious decisions about how they are going to improve the way they run projects.

Successful project firms work to expand the authority of the project manager, often in the face of stiff resistance from functional department heads who like the power balance the way it currently exists. Giving project managers high status, authority to conduct performance evaluations of team members, authority over project resources, and direct links to the customers are part of the process of redirecting this power balance. Project managers who are constantly forced to rely on the good graces of functional managers for their team staffing, coordination, and financial and other resources already operate with one hand tied behind their backs. Heavyweight project organizations have realigned their priorities away from functional maintenance to market opportunism. That realignment only occurs when the resources needed to respond rapidly to market opportunities rest with the project team rather than being controlled by higher level bureaucracies within a company. Finally, as we note throughout this book, the shift in focus for many firms toward project-based work has begun to profoundly affect the manner in which the project organization, manager, and the team operate. The new focus on the external customer becomes the driving force for operations, not simply one of several competing demands placed on the project team for them to satisfy as best they can.

Ultimately, the decision of which organizational structure is appropriate to use may simply come down to one of expediency; while it may, in fact, be desirable to conduct projects within a structure that offers maximum flexibility and authority to the project manager (the pure project structure), the fact remains that for many project managers it will be impossible to significantly influence decisions to alter the overall organizational structure in support of their project. As a result, perhaps a more appropriate question to ask is: What issues should I be aware of, given the structure of the organization within which I will be managing projects? The previous discussion in this chapter has developed this focus as our primary concern. Given the nature of the structure within which we must operate and manage our projects, what are the strengths and weaknesses of that form as it pertains to our ability to do our job as best we can? In formulating a thoughtful answer to this question, we are perhaps best positioned to understand and adapt most effectively to finding the link between our organization’s structure and project management success.



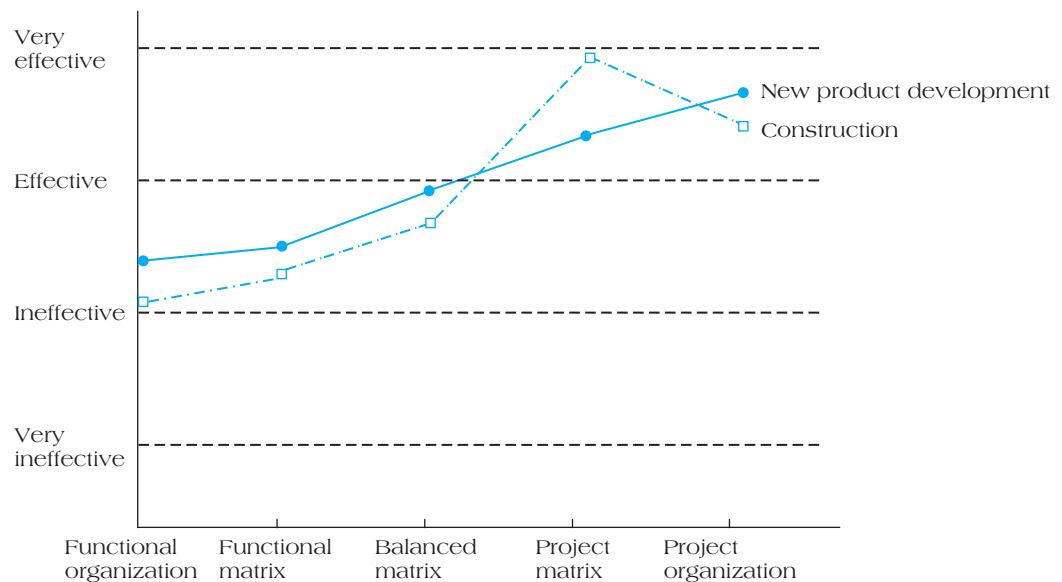
## BOX 2.1

## PROJECT MANAGEMENT RESEARCH IN BRIEF

## The Impact of Organizational Structure on Project Performance

It is natural to suppose that projects may run more smoothly in some types of organizational structure than others. Increasingly, there is research evidence to suggest that depending upon the type of project being initiated, some structural forms do, in fact, offer greater advantages in promoting successful completion of the project than do others. The work of Gobeli and Larson, for example, is important in highlighting the fact that the type of structure a firm has when it runs projects will have either a beneficial or detrimental effect on their viability. Larson and Gobeli compared projects that had been managed in a variety of structural types, including functional, matrix, and pure project. They differentiated among three subsets of matrix structure, labeled *functional matrix*, *balanced matrix*, and *project matrix* based on their perception that the firms' matrix structure leaned more heavily toward a functional approach, an evenly balanced style, or one more favorable toward projects. After collecting data from a sample of more than 1,600 project managers, they identified those who were conducting projects in each of the five organizational types they identified and asked them to assess the effectiveness of that particular structure in promoting or inhibiting effective project management practices. Their findings are shown in Figure 2.9, highlighting the fact that, in general, project organizations do promote an atmosphere more supportive of successful project management.

Interestingly, when they broke their sample up into new product development projects and those related to construction, their findings were largely similar, with the exception that construction projects were marginally more effective in matrix organizations. This suggests that structure plays a significant role in the creation of successful projects.<sup>24</sup>



**FIGURE 2.9** Manager's Perceptions of Effectiveness of Various Structures on Project Success

Source: D. H. Gobeli and E. W. Larson. 1987. "Relative Effectiveness of Different Project Management Structures," *Project Management Journal*, vol. 18(2), 81–85, figure on page 83. Copyright and all rights reserved. Material from this publication has been reproduced with the permission of PMI.

## 2.5 PROJECT MANAGEMENT OFFICES

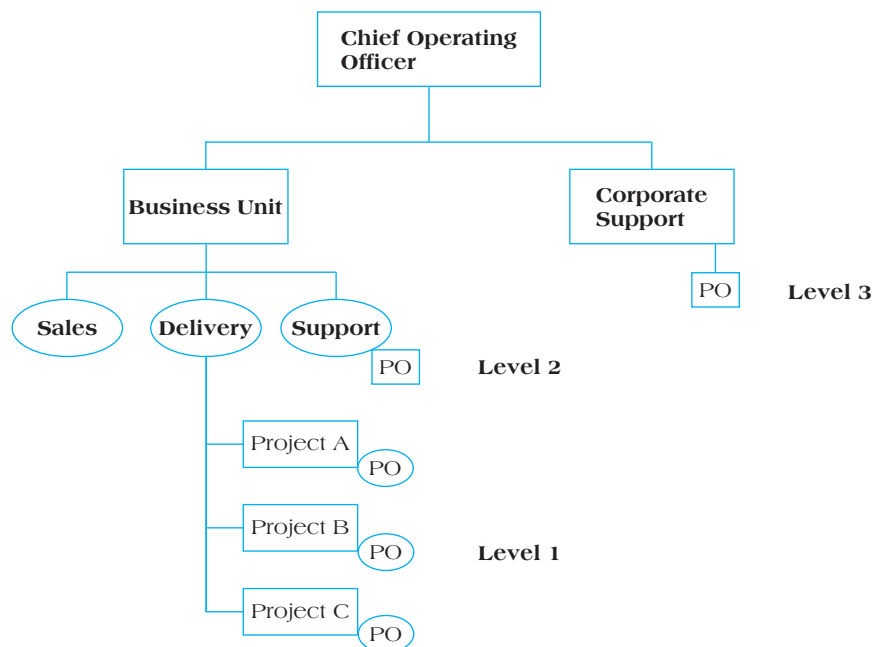
A **project management office** (PMO) is defined as a centralized unit within an organization or department that oversees or improves the management of projects.<sup>25</sup> It is seen as a center for excellence in project management in many organizations, existing as a separate organizational entity or subunit that assists the project manager in achieving project goals by providing direct expertise in vital project management duties such as scheduling, resource allocation, monitoring, and controlling the project. PMOs were originally developed in

recognition of the poor track record that many organizations have demonstrated in running their projects. We cited some sobering statistics on the failure rates of IT projects, for example, back in Chapter 1 indicating that the majority of such projects are likely to fail.

PMOs were created in acknowledgement of the fact that a resource center for project management within a company can offer tremendous advantages. First, as we have noted, project managers are called upon to engage in a wide range of duties, including everything from attending to the human side of project management to handling important technical details. In many cases, these individuals may not have the time or ability to handle all the myriad technical details—the activity scheduling, resource allocation, monitoring and control processes, and so forth. Using a PMO as a resource center shifts some of the burden for these activities from the project manager to a support staff that is dedicated to providing this assistance. Second, it is clear that although project management is emerging as a profession in its own right, there is still a wide gap in knowledge and expectations placed on project managers and their teams. Simply put, they may not have the skills or knowledge for handling a number of project support activities, such as resource leveling or variance reporting. Having trained project management professionals available through a PMO creates a “clearinghouse” effect that allows project teams to tap into expertise when they need it.

Another benefit of the PMO is that it can serve as a central repository of all lessons learned, project documentation, and other pertinent record keeping for ongoing projects, as well as for past projects. This function allows all project managers a central access to past project records and lessons learned materials, rather than having to engage in a haphazard search for these documents throughout the organization. A fourth benefit of the PMO is that it serves as the dedicated center for project management excellence in the company. As such, it becomes the focus for all project management process improvements that are then diffused to other organizational units. Thus, the PMO becomes the place in which new project management improvements are first identified, tested, refined, and finally, passed along to the rest of the organization. Each project manager can use the PMO as a resource, trusting that they will make themselves responsible for all project management innovations.

A PMO can be placed in any one of several locations within a firm.<sup>26</sup> As Figure 2.10 demonstrates, the PMO may be situated at a corporate level (Level 3) where it serves an overall corporate support function. It can be placed at a lower functional level (Level 2) where it serves the needs within a specific business unit. Finally, the PMO can be decentralized down to the actual project level (Level 1) where it offers direct support for each project. The key to understanding the function of the PMO is to recognize that it is designed to *support* the activities of the project manager and staff, not *replace* the manager or take responsibility for the project. Under these circumstances, we see that the PMO can take a lot of the pressure off the project manager by handling



**FIGURE 2.10** Alternative Levels of Project Offices

Source: W. Casey and W. Peck. 2001. “Choosing the Right PMO Setup,” *PMNetwork*, 15(2), 40–47, figure on page 44.

the administration duties, leaving the project manager free to focus on the equally important people issues, including leading, negotiating, customer relationship building, and so forth.

Although Figure 2.10 gives us a sense of where PMOs may be positioned in the organization and by extension, clues to their supporting role depending upon how they are structured, it is helpful to consider some of the models for PMOs. PMOs have been described as operating under one of three alternative forms and purposes in companies: (1) weather station, (2) control tower, and (3) resource pool.<sup>27</sup> Each of these models has an alternative role for the PMO.

1. **Weather station**—Under the weather station model, the PMO is typically used only as a tracking and monitoring device. In this approach, the assumption is often one in which top management, feeling nervous about committing money to a wide range of projects, wants a weather station as a tracking device, to keep an eye on the status of the projects without directly attempting to influence or control them. The weather station PMO is intended to house independent observers who focus almost exclusively on some key questions, such as:
  - What's our progress? How is the project progressing against the original plan? What key milestones have we achieved?
  - How much have we paid for the project so far? How do our earned value projections look? Are there any budgetary warning signals?
  - What is the status of major project risks? Have we updated our contingency planning as needed?
2. **Control tower**—The control tower model treats project management as a business skill to be protected and supported. It focuses on developing methods for continually improving project management skills by identifying what is working, where the shortcomings exist, and how to resolve ongoing problems. Most importantly, unlike the weather station model, which monitors project management activities only to report results to top management, the control tower is a model that is intended to directly work with and support the activities of the project manager and team. In doing so, it performs four functions:
  - **Establishes standards for managing projects**—The control tower model of the PMO is designed to create a uniform methodology for all project management activities, including duration estimation, budgets, risk management, scope development, and so forth.
  - **Consults on how to follow these standards**—In addition to determining the appropriate standards for running projects, the PMO is set up to help project managers meet those standards through providing internal consultants or project management experts throughout the development cycle as their expertise is needed.
  - **Enforces the standards**—Unless there is some process that allows the organization to enforce the project management standards it has developed and disseminated, it will not be taken seriously. The control tower PMO has the authority to enforce the standards it has established, either through rewards for excellent performance or sanctions for refusal to abide by the standard project management principles.
  - **Improves the standards**—The PMO is always motivated to look for ways to improve the current state of project management procedures. Once a new level of project performance has been created, under a policy of continuous improvement, the PMO should already be exploring how to make good practices better.
3. **Resource pool**—The goal of the resource pool PMO is to maintain and provide a cadre of trained and skilled project professionals as they are needed. In essence, it becomes a clearinghouse for continually upgrading the skills of the firm's project managers. As the company initiates new projects, the affected departments apply to the resource pool PMO for assets to populate the project team. The resource pool PMO is responsible for supplying project managers and other skilled professionals to the company's projects. In order for this model to be implemented successfully, it is important for the resource pool to be afforded sufficiently high status within the organization that it can bargain on an equal footing with other top managers who need project managers for their projects. Referring back to Figure 2.10, the resource pool model seems to work best when the PMO is generally viewed as a Level 3 support structure, giving the head of the PMO the status to maintain control of the pool of trained project managers and the authority to assign them as deemed appropriate.

The PMO concept is one that is rapidly being assimilated in a number of companies. However, it has some critics. For example, some critics contend that it is a mistake to “place all the eggs in one basket” with PMOs by concentrating all project professionals in one location. This argument suggests that PMOs actually inhibit the natural, unofficial dissemination of project skills across organizational units by maintaining them at one central location. Another potential pitfall is that the PMO, if its philosophy is not carefully explained,

can simply become another layer of oversight and bureaucracy within the organization; in effect, rather than freeing up the project team by performing supporting functions, it actually handcuffs the project by requiring additional administrative control. Another potential problem associated with the use of PMOs is that they may serve as a bottleneck for communications flows across the organization,<sup>28</sup> particularly between the parent organization and the project's customer.

Although some of the criticisms of PMOs contain an element of truth, they should not be used to avoid the adoption of a project office under the right circumstances. The PMO is, at its core, recognition that project management skill development must be encouraged and reinforced, that many organizations have great need of standardized project practices, and that a central, supporting function can serve as a strong source for continuous project skill improvement. Viewed in this light, the PMO concept is one that is likely to gain in popularity in the years to come.

## 2.6 ORGANIZATIONAL CULTURE

The third key contextual variable in how projects are managed effectively is that of organizational culture. So far, we have examined the manner in which a firm's strategy affects its project management, how projects and portfolios are inextricably tied to a company's vision and serve to operationalize strategic choices. Structure constitutes the second piece of the contextual puzzle by demonstrating how various organizational designs can help or hinder the project management process. We can now turn to the third contextual variable: an organization's culture and its impact on managing projects.

One of the unique characteristics of organizations is the manner in which each develops its own outlook, operating policies and procedures, patterns of thinking, attitudes, and norms of behavior. These characteristics are often as unique as an individual's fingerprints or DNA signature; in the same way, no two organizations, no matter how similar in size, products, operating environment, or profitability, are the same. Each has developed its own unique method for indoctrinating its employees, responding to environmental threats and opportunities, and supporting or discouraging operating behaviors. In other settings, such as anthropology, a culture is seen as the collective or shared learning of a group, and it influences how that group is likely to respond in different situations. These ideas are embedded in the concept of **organizational culture**. One of the original writers on culture defined it as "the solution to external and internal problems that has worked consistently for a group and that is therefore taught to new members as the correct way to perceive, think about, and feel in relation to these problems."<sup>29</sup>

Travel around Europe and you will quickly become immersed in a variety of cultures. You will discern the unique cultural characteristics that distinguish nationalities, such as the Finnish and Swedish. Differences in language, social behavior, family organization, and even religious beliefs clearly demonstrate these cultural differences. Even within a country, cultural attitudes and values vary dramatically. The norms, attitudes, and common behaviors of northern and southern Italians lead to differences in dress, speech patterns, and even evening dining times. One of the key elements in courses on international business identifies cultural differences as patterns of unique behavior, so that business travelers or those living in other countries will be able to recognize "appropriate" standards of behavior and cultural attitudes, even though these cultural patterns may be very different from those of the traveler's country or origin.

For project team members who are called upon to work on projects overseas, or who are linked via the Internet and e-mail to other project team members from different countries, developing an appreciation for cross-border cultural differences is critical. The values and attitudes expressed by these various cultures are strong regulators of individual behavior; they define our belief systems and work dedication, as well as our ability to function on cross-cultural project teams.

Research has also begun to actively explore the impact that workplace cultures have on the performance of projects and the manner in which individual project team members decide whether or not they will commit to its goals. Consider two contrasting examples the author has witnessed: In one *Fortune* 500 company, functional department heads for years have responded to all resource requests from project managers by assigning their worst, newest, or lowest-performing personnel to these teams. In effect, they have treated projects as dumping grounds for malcontents or poor performers. In this organization, project teams are commonly referred to as "leper colonies." It is easy to imagine the response of a member of the firm to the news that he has just been assigned to a new project! On the other hand, I have worked with an IT organization where the unspoken rule is that all departmental personnel are to make themselves available as expert resources when their help is requested by a project manager. The highest priority in the company is project delivery, and all other activities are subordinated to achieving this expectation. It is common, during particularly hectic

periods, for IT members to work 12-plus hours per day, assisting on 10 or more projects at any time. As one manager put it, “When we are in crunch time, titles and job descriptions don’t mean anything. If it has to get done, we are all responsible—jointly—to make sure it gets done.”

The differences in managing projects at the companies illustrated in these stories are striking, as is the culture that permeates their working environment and approach to project delivery. Our definition of **culture** can be directly applied in both of these cases to refer to the unwritten rules of behavior, or norms that are used to shape and guide behavior, that are shared by some subset of organizational members, and that are taught to all new members of the company. This definition has some important elements that must be examined in more detail:

- **Unwritten**—Cultural norms guide the behavior of each member of the organization but are often not written down. In this way, there can be a great difference between the slogans or inspirational posters found on company walls and the *real*, clearly understood culture that establishes standards of behavior and enforces them for all new company members. For example, Erie Insurance, annually voted one of the best companies to work for, has a strong, supportive culture that emphasizes and rewards positive collaboration between functional groups. Although the policy is not written down, it is widely held, understood by all, and taught to new organization members. When projects require the assistance of personnel from multiple departments, the support is expected to be there.
- **Rules of behavior**—Cultural norms guide behavior by allowing us a common language for understanding, defining, or explaining phenomena and then providing us with guidelines as to how best to react to these events. These rules of behavior can be very powerful and commonly held: They apply equally to top management and workers on the shop floor. However, because they are unwritten, we may learn them the hard way. For example, if you were newly hired as a project engineer and were working considerably slower or faster than your coworkers, it is likely that one of them would quickly clue you in on an acceptable level of speed that does not make you or anyone else look bad by comparison.
- **Held by some subset of the organization**—Cultural norms may or may not be company-wide. In fact, it is very common to find cultural attitudes differing widely within an organization. For example, blue-collar workers may have a highly antagonistic attitude toward top management; members of the finance department may view the marketing function with hostility and vice versa; and so forth. These “subcultures” reflect the fact that an organization may contain a number of different cultures, operating in different locations or at different levels. Pitney-Bowes, for example, is a maker of postage meters and other office equipment. Its headquarters unit reflects an image of stability, orderliness, and prestige. However, one of its divisions, Pitney-Bowes Credit Corporation (PBCC), headquartered in Shelton, Connecticut, has made a name for itself by purposely adopting an attitude of informality, openness, and fun. Its décor, featuring fake gas lamps, a French café, and Internet surfing booths, has been described as resembling an “indoor theme park.” PBCC has deliberately created a subculture that reflects its own approach to business, rather than adopting the general corporate vision.<sup>30</sup> Another example is the Macintosh project team’s approach to creating a distinct culture at Apple while they were developing this revolutionary system, to the point of being housed in different facilities from the rest of the company and flying a pirate flag from the flagpole!
- **Taught to all new members**—It’s clear that cultural attitudes, because they are often unwritten, may not be taught to newcomers in formal ways. New members of an organization pick up the behaviors as they observe others engaging in them. In some organizations, however, all new hires are immersed in a formal indoctrination program to ensure that they understand and appreciate the organization’s culture. The United States Marines, for example, take pride in the process of indoctrination and training for all recruits, which develops a collective, pride-filled attitude toward the Marine Corps. IBM takes its new indoctrination procedures seriously, spending weeks training new employees in the IBM philosophy, work attitudes, and culture. General Electric also sends new employees away for orientation, to be “tattooed with the meatball,” as members of the company refer to the GE logo.

## How Do Cultures Form?

When it is possible to view two organizations producing similar products within the context of very individualistic and different cultures, the question of how cultures form gets particularly interesting. General Electric’s Jet Engine Division and Rolls-Royce share many features, including product lines. Both produce jet engines for the commercial and defense aircraft industries. However, GE prides itself on its competitive, high-pressure culture that rewards aggressiveness and high commitment, but also has a high “burnout” rate among



engineers and midlevel managers. Rolls-Royce, on the other hand, represents an example of a much more paternalistic culture that rewards loyalty and long job tenure.

Researchers have examined some of the powerful forces that can influence how a company's culture emerges. Among the key factors that affect the development of a culture are: technology, environment, geographical location, reward systems, rules and procedures, key organizational members, and critical incidents.<sup>31</sup>

**TECHNOLOGY** The **technology** of an organization refers to its conversion process whereby it transforms inputs into outputs. For example, the technology of many project organizations is the project development process in which projects are developed to fill a current need or anticipate a future opportunity. The technical means for creating projects can be highly complex and automated or relatively simple and straightforward. Further, the projects may be in the form of products or services. Research suggests that the type of technology used within a project organization can influence the culture that it promotes. "High technology" organizations represent an example of how a fast-paced, technologically based culture can permeate through an organization.

**ENVIRONMENT** Organizations operate under distinct environmental pressures. A firm's environment may be complex and rapidly changing, or it may remain relatively simple and stable. Some firms are global, because their competition is literally worldwide, while other companies focus on regional competition. Regardless of the specific circumstances, a company's environment affects the culture of the firm. For example, companies with simple and slow-changing environments may develop cultures that reinforce low risk taking, stability, and efficiency. Firms in highly complex environments often develop cultures aimed at promoting rapid response, external scanning for opportunities and threats, and risk taking. In this way, the firm's operating environment affects the formation of the culture and the behaviors that are considered acceptable within it. For example, a small, regional construction firm specializing in commercial real estate development is likely to have more stable environmental concerns than a Fluor-Daniel or Bechtel, competing for a variety of construction projects on a worldwide basis.

**GEOGRAPHICAL LOCATION** Different geographical regions develop their own cultural mores and attitudes. The farther south in Europe one travels, for example, the later the evening meal is typically eaten; in Spain, dinner may commence after 9 PM. Likewise, in the business world, culturally based attitudes often coordinate with the geographical locations of firms or subsidiaries. It can even happen within countries: Xerox Corporation, for example, had tremendous difficulty in trying to marry the cultures of its corporate headquarters in Connecticut with the more informal and down-to-earth mentalities of its Palo Alto Research Center (PARC) personnel. Projects at one site were done much differently than those undertaken at another location. It is important not to overstate the effect that geography can play, but it certainly can result in cultural disconnects, particularly in cases where organizations have developed a number of dispersed locations, both within and outside of their country of origin.

**REWARD SYSTEMS** The types of rewards that a firm offers to employees go a long way toward demonstrating the beliefs and actions its top management truly values, regardless of what official company policies might be. Reward systems support the view that, in effect, a company gets what it pays for. An organization that publicly espouses environmental awareness and customer service but routinely promotes project managers who violate these principles sends a loud message about its real interests. As a result, the culture quickly forms around acts that lead to pollution, dishonesty, or obfuscation. One has only to look at past business headlines regarding corporate malfeasance at Enron, WorldCom, or Adelphia Cable Company to see how the culture of those organizations rewarded the type of behavior that ultimately led to accounting fraud, public exposure, and millions of dollars in fines.

**RULES AND PROCEDURES** One method for influencing a project management culture is to create a rule-book or system of procedures for employees to clarify acceptable behavior. The idea behind rules and procedures is to signal companywide standards of behavior to new employees. The obvious problem arises when public or formal rules conflict with informal rules of behavior. At Texas Instruments headquarters in Dallas, Texas, a formal rule is that all management staff works a standard 40-hour workweek. However, the informal rule is that each member of the company is really expected to work a 45-hour week, at a minimum, or as one senior manager explained to a newly hired employee, "Here, you work nine hours each day: eight for you and one for TI." In spite of the potential for disagreements between formal and informal rules, most programs in



creating supportive project-based organizations argue that the first step toward improving patterns of behavior is to formally codify expectations in order to alter dysfunctional project cultures. Rules and procedures, thus, represent a good starting point for developing a strong project culture.

**KEY ORGANIZATIONAL MEMBERS** Key organizational members, including the founder of the organization, have a tremendous impact on the culture that emerges within the company. When the founder is a traditional entrepreneur who encourages free expression or flexibility, this attitude becomes ingrained in the organization's culture in a powerful way. The founders of Ben and Jerry's Ice Cream, two admitted ex-hippies, created a corporate culture that was unique and expressed their desire to develop a "fun" alternative to basic capitalism. A corporate culture in which senior executives routinely flaunt the rules or act contrary to stated policies demonstrates a culture in which there is one rule for the people at the top and another for everyone else.

**CRITICAL INCIDENTS** Critical incidents express culture because they demonstrate for all workers exactly what it takes to succeed in an organization. In other words, critical incidents are a public expression of what rules *really* operate, regardless of what the company formally espouses. Critical incidents usually take the form of stories that are related to others, including new employees, illustrating the types of actions that are valued. They become part of the company's lore, either for good or ill. In 2000, General Electric's Transportation Systems Division received a large order for locomotives. The company galvanized its production facilities to work overtime to complete the order. As one member of the union related, "When you see a unit vice president show up on Saturday, put on an environmental suit, and work on the line spray painting locomotives with the rest of the workers, you realize how committed the company was to getting this order completed on time."

## Organizational Culture and Project Management

What are the implications of an organizational culture on the project management process? Culture can affect project management in at least four ways. First, it affects how departments are expected to interact and support each other in pursuit of project goals. Second, the culture influences the level of employee commitment to the goals of the project on balance with other, potentially competing goals. Third, the organizational culture influences project planning processes such as the way work is estimated or how resources are assigned to projects. Finally, the culture affects how managers evaluate the performance of project teams and how they view the outcomes of projects.

- **Departmental interaction**—Several of the examples cited in this chapter have focused on the importance of developing and maintaining a solid, supportive relationship between functional departments and project teams. In functional and matrix organizations, power either resides directly with department heads or is shared with project managers. In either case, the manner in which these department heads approach their willingness to support projects plays a hugely important role in the success or failure of new project initiatives. Not surprisingly, cultures that favor active cooperation between functional groups and new projects are much more successful than those that adopt a disinterested or even adversarial relationship.
- **Employee commitment to goals**—Projects depend on the commitment and motivation of the personnel assigned to their activities. A culture that promotes employee commitment and, when necessary, self-sacrifice through working extra hours or on multiple tasks is much more successful than a culture in which the unwritten rules seem to imply that, provided you don't get caught, there is nothing wrong with simply going through the motions. AMEC Corporation, for example, takes its training of employees seriously when it comes to instilling a commitment to safety. AMEC is a multinational industrial construction company, headquartered in Canada. With annual revenues of over \$4 billion and 20,000 employees, AMEC is one of the largest construction firms in the world. It takes its commitment to core values extremely seriously, impressing upon all employees their responsibilities to customers, business partners, each other, the company, and the wider social environment. From the moment new people enter the organization, they are made aware of the need to commit to these guiding principles of ethical behavior, fairness, commitment to quality, and safety.<sup>32</sup>

- **Project planning**—We will explore the process of activity duration estimation in a later chapter; however, for now it is important just to note that the way in which employees decide to support the project planning processes is critical. Because activity estimation is often an imprecise process, it is common for some project team members to “pad” their estimates to give themselves as much time as possible. These people are often responding to a culture that reinforces the idea that it is better to engage in poor estimation and project planning than to be late with deliverables. Conversely, when there is a culture of trust among project team members, we are more inclined to give honest assessments, without fearing that, should we be wrong, we will be punished for our mistakes.
- **Performance evaluation**—Supportive cultures encourage project team members taking the initiative, even if it means taking risks to boost performance. When a culture sends the signal that the goal of the firm is to create innovative products, it reinforces a project management culture that is aggressive and offers potentially high payoffs (and the occasional significant loss!). As we noted earlier, organizations get what they pay for. If the reward systems are positive and reinforce a strong project mentality, they will reap a whirlwind of opportunities. On the other hand, if they tacitly support caution and playing it safe, the project management approaches will equally reflect this principle.

A culture can powerfully affect the manner in which departments within an organization view the process of project management. The culture also influences the manner in which employees commit themselves to the goals of their projects as opposed to other, potentially competing goals. Through symbols, stories, and other signs, companies signal their commitment to project management. This message is not lost on members of project teams, who take their cues regarding expected performance from supervisors and other cultural artifacts. Visible symbols of a culture that advocates cross-functional cooperation will create employees who are prepared and motivated to work in harmony with other groups on project goals. Likewise, when an IT department elevates some of its members to hero status because they routinely went the extra mile to handle system user complaints or problems, the company has sent the message that they are all working toward the same goals and all provide value to the organization’s operations, regardless of their functional background.

To envision how culture can influence the planning and project monitoring processes, suppose that, in your organization, it was clear that those involved in late projects would be severely punished for the schedule slippage. You and your fellow project team members would quickly learn that it is critical to avoid going out

## PROJECT PROFILE

### Creating a Culture for Project Management: The Renault Racing Team

Formula One (F1) Racing is estimated to attract the third largest audience in the world, after World Cup Soccer and the Olympics. F1 racing occurs almost every week during the season, year after year. Arguably, therefore, the F1 circuit represents the most popular ongoing sporting event in the world. When we think of natural settings for project management, F1 racing may not be at the top of our lists. However, thanks to a culture within the sport that is aimed at achieving newer and greater technological advances, project management practices play an enormous role in F1 team racing.

Renault’s Formula One racing team, jointly located in Enstone, England, and Viry-Chatillon, France, developed a racing car designed and built solely by Renault engineers. In both engine and body technology, the product is 100% Renault. The company develops scores of projects in engine design, aerodynamics, metal composites, and body design each year, continuing to push the edges of the technological envelope. The company estimates that its engineers can produce more than 10,000 computer-aided design (CAD) drawings every year to find the competitive edge it is seeking. The firm’s success has been based on a corporate culture that emphasizes the philosophy to “always plan for success.”

Promoting a culture of excellence in design and development, the company applies a team-based approach to its project management. Two teams totaling almost 800 people work at Renault’s two locations to develop engine and auto body designs. The culture encourages constant tinkering, changes to designs, and experimentation. Because engineers have to work fast to make changes to the cars without allowing for any schedule slippage, Renault has adopted digital manufacturing (using 3D digital imaging for designs) and concurrent engineering, in which actual engineering and manufacturing are begun even before final designs have been completed. The result is a culture that is fast paced, technologically on the leading edge, and exciting—all in support of attaining the number one position in Formula One racing.<sup>33</sup>

on a limb to promise early task completion dates. It is much safer to grossly overestimate the amount of time necessary to complete a task in order to protect yourself. The organizational culture in this case breeds deceit. Likewise, it may be safer in some organizations to deliberately hide information in cases where a project is running off track, or mislead top management with optimistic and false estimates of project progress. Essentially, the issue is this: Does the corporate culture encourage authentic information and truthful interactions, or is it clear that the safer route is to first protect yourself, regardless of the effect this behavior may have on a project succeeding?

What are some examples of an organization's culture influencing how project teams actually perform and how outcomes are perceived? One common situation is the phenomenon known as escalation of commitment. It is not uncommon to see this process at work in project organizations. **Escalation of commitment** occurs when, in spite of evidence identifying a project as failing, no longer necessary, or beset by huge technical or other difficulties, organizations continue to support it past the point an objective viewpoint would suggest that it should be terminated.<sup>34</sup> Although there are a number of reasons for escalation of commitment to a failed decision, one important reason is the unwillingness of the organization to acknowledge failure or its culture's working toward blinding key decision makers to the need to take corrective action.

The reverse is also true: In many organizations, projects are managed in an environment in which the culture strongly supports cross-functional cooperation, assigns sufficient resources to enable project managers to schedule aggressively, and creates an atmosphere that makes it possible to develop projects optimally. It is important to recognize that an organization's culture can be a strong supporter of (as well as an inhibitor to) the firm's ability to manage effective projects. Because of this impact, organizational culture must be managed, constantly assessed, and when necessary, changed in ways that promote project management rather than discouraging its efficient practice.

The context within which we manage our projects is a key determinant in the likelihood of their success or failure. Three critical contextual factors are the organization's strategy, structure, and culture. Strategy drives projects; projects operationalize strategy. The two must work together in harmony. The key is maintaining a clear linkage between overall strategy and the firm's portfolio of projects, ensuring that some form of alignment exists among all key elements: vision, objectives, strategies, goals, and programs. Further, companies are recognizing that when they adopt a structure that supports projects, they get better results. Likewise, when the cultural ambience of the organization favors project management approaches, they are much more likely to be successful. Some of these project management approaches are the willingness to take risks, to think creatively, to work closely with other functional departments, and so forth. More and more we are seeing successful project-based organizations recognizing the simple truth that the context in which they are trying to create projects is a critical element in seeing their projects through to commercial and technical success.

## Summary

1. **Understand how effective project management contributes to achieving strategic objectives.** This chapter linked projects with corporate strategy. Projects are the "building blocks" of strategy because they serve as the most basic tools by which firms can implement previously formulated objectives and strategies.
2. **Recognize three components of the corporate strategy model: formulation, implementation, and evaluation.** The chapter explored a generic model of corporate strategic management, distinguishing between the three components of strategy formulation, strategy implementation, and strategy evaluation. Each of these components incorporates a number of subdimensions. For example, strategy formulation includes the stages of:
  - Developing a vision and mission.
  - Performing an internal audit (assessing strengths and weaknesses).

- Performing an external audit (assessing opportunities and threats).
- Establishing long-term objectives.
- Generating, evaluating, and selecting strategies.

Strategy implementation requires the coordination of managerial, technological, financial, and functional assets to reinforce and support strategies. Projects often serve as the means by which strategy implementation is actually realized. Finally, strategy evaluation requires an ability to measure results and provide feedback to all concerned parties.

3. **See the importance of identifying critical project stakeholders and managing them within the context of project development.** The chapter addresses a final strategic question: the relationship between the firm and its stakeholder groups. Project stakeholders

are either internal to the firm (top management, other functional departments, support personnel, internal customers), or external (suppliers, distributors, intervenors, governmental agencies and regulators, and customers). Each of these stakeholder groups must be managed in a systematic manner; the process moves from identification to needs assessment, choice of strategy, and routine evaluation and adjustment. Stakeholder management, in conjunction with strategic management, forms the context by which projects are first evaluated and then managed.

4. **Recognize the strengths and weaknesses of three basic forms of organizational structure and their implications for managing projects.** We examined the strengths and weaknesses of three major organizational structure types, including functional, project, and matrix structures. The nature of each of the four structure types and their relationship to project management were addressed. The functional structure, while the most common type of organization form, was shown to be perhaps the least effective type for managing projects due to a variety of limitations. The project structure, in which the organization uses its projects as the primary form of grouping, has several advantages for managing projects, although it has some general disadvantages as well. Finally, the matrix structure, which seeks to balance the authority and activities between projects and functions using a dual hierarchy system, demonstrates its own unique set of strengths and weaknesses for project management practice.
5. **Understand how companies can change their structure into a “heavyweight project organization” structure to facilitate effective project management practices.** The movements within many organizations to a stronger customer focus in their project management operations has led to the creation of a heavyweight project organization, in which the project manager is given high levels of authority in order to further the goals of the project. Because customer satisfaction is the goal of these organizations, they rely on their project managers to work toward project success within the framework of greater control of project resources and direct contact with clients.
6. **Identify the characteristics of three forms of project management office (PMO).** Project management offices (PMOs) are centralized units within an organization or department that oversees or improves the management of projects. There are three predominant types of PMO in organizations. The weather station is typically used only as a tracking and monitoring device. In this approach, the role of the PMO is to keep an eye on the status of the projects without directly attempting to influence or control them. The second form of PMO is the control tower, which treats project management as

a business skill to be protected and supported. It focuses on developing methods for continually improving project management skills by identifying what is working, where the shortcomings exist, and methods for resolving ongoing problems. Most importantly, unlike the weather station model, which only monitors project management activities to report results to top management, the control tower is a model that is intended to directly work with and support the activities of the project manager and team. Finally, the resource pool is a PMO intended to maintain and provide a cadre of trained and skilled project professionals as they are needed. It serves as a clearinghouse for continually upgrading the skills of the firm’s project managers. As the company initiates new projects, the affected departments apply to the resource pool PMO for assets to populate the project team.

7. **Understand key concepts of corporate culture and how cultures are formed.** Another contextual factor, organizational culture, plays an important role in influencing the attitudes and values shared by members of the organization, which, in turn, affects their commitment to project management and its practices. Culture is defined as the unwritten rules of behavior, or norms that are used to shape and guide behavior, are shared by some subset of organizational members, and are taught to all new members of the company. When the firm has a strong culture that is supportive of project goals, they are more likely to work collaboratively, to minimize departmental loyalties at the expense of project goals, and to commit the necessary resources to achieve the objectives of the project.

Organizational cultures are formed as a result of a variety of factors, including technology, environment, geographical location, reward systems, rules and procedures, key organizational members, and critical incidents. Each of these factors can play a role in determining whether the organization’s culture is strong, collaborative, customer-focused, project-oriented, fast-paced, and so forth.

8. **Recognize the positive effects of a supportive organizational culture on project management practices versus those of a culture that works against project management.** Finally, this chapter examined the manner in which supportive cultures can work in favor of project management and ways in which the culture can inhibit project success. One common facet of a “sick” culture is the escalation of a commitment problem, in which key members of the organization continue to increase their support for clearly failing courses of action or problematic projects. The reasons for escalation are numerous, including: our prestige is on the line, the conviction that we are close to succeeding, fear of ridicule if we admit to failure, and the culture of the organization in which we operate.

## Key Terms

Culture (p. 55)	Intervenor groups (p. 38)	Programs (p. 36)	Strategic management (p. 34)
Escalation of commitment (p. 59)	Matrix organization (p. 47)	Project management office (p. 51)	Strong matrix (p. 48)
External environment (p. 43)	Matrix structure (p. 47)	Project organizations (p. 46)	Technology (p. 56)
Functional structure (p. 43)	Objectives (p. 34)	Project stakeholders (p. 37)	Weak matrix (p. 48)
Heavyweight project organization (p. 50)	Organizational culture (p. 54)	Project structure (p. 46)	
	Organizational structure (p. 42)	Resource (p. 48)	
		Stakeholder analysis (p. 37)	

## Discussion Questions

- The chapter suggests that a definition of strategic management includes four components:
  - Developing a strategic vision and sense of mission
  - Formulating, implementing, and evaluating
  - Making cross-functional decisions
  - Achieving objectives

Discuss how each of these four elements is important in understanding the challenge of strategic project management. How do projects serve to allow an organization to realize each of these four components of strategic management?

- Discuss the difference between organizational objectives and strategies.
- Your company is planning to construct a nuclear power plant in Oregon. Why is stakeholder analysis important as a precondition of the decision whether or not to follow through with such a plan? Conduct a stakeholder analysis for a planned upgrade to a successful software product. Who are the key stakeholders?
- Consider a medium-sized company that has decided to begin using project management in a wide variety of its operations. As part of their operational shift, it is going to adopt a project management office somewhere within the organization. Make an argument for the type of PMO it should be adopting (weather station, control tower, or resource pool). What are some of the key decision criteria that will help it determine which model makes most sense?
- What are some of the key organizational elements that can affect the development and maintenance of a supportive

organizational culture? As a consultant, what advice would you give to a functional organization that was seeking to move from an old, adversarial culture, where the various departments actively resisted helping one another, to one that encourages “project thinking” and cross-functional cooperation?

- You are a member of the senior management staff at XYZ Corporation. You have historically been using a functional structure set up with five departments: finance, human resources, marketing, production, and engineering.
  - Create a drawing of your simplified functional structure, identifying the five departments.
  - Assume you have decided to move to a project structure. What might be some of the environmental pressures that would contribute to your belief that it is necessary to alter the structure?
  - With the project structure, you have four projects ongoing: stereo equipment, instrumentation and testing equipment, optical scanners, and defense communications. Draw the new structure that creates these four projects as part of the organizational chart.
- Suppose you now want to convert the structure from Question #6 to a matrix, emphasizing dual commitments to function and project.
  - Re-create the structural design to show how the matrix would look.
  - What behavioral problems could you begin to anticipate through this design? That is, do you see any potential points of friction in the dual hierarchy setup?

## Case Study 2.1

### Rolls-Royce Corporation

Although for many of us the name Rolls-Royce is inextricably linked with its ultraluxurious automobiles, the modern Rolls-Royce operates in an entirely different competitive environment. A leading manufacturer of power systems for aerospace, marine, and power companies, Rolls's market is focused on developing jet engines for a variety of uses, both commercial and defense-related. In this market, the company has two principal competitors,

General Electric and Pratt & Whitney (owned by United Technologies). There are a limited number of smaller, niche players in the jet engine market, but their impact from a technical and commercial perspective is minor. Rolls, GE, and Pratt & Whitney routinely engage in fierce competition for sales to defense contractors and the commercial aviation industry. The two main airframe manufacturers, Boeing and Airbus, make continual

(continued)



multimillion-dollar purchase decisions that are vital for the ongoing success of the engine makers. Airbus, a private consortium of several European partner companies, has drawn level with Boeing in sales in recent years. Because the cost of a single jet engine, including spare parts, can run to several million dollars, winning large orders from either defense or commercial aircraft builders represents an ongoing challenge for each of the “big three” jet engine manufacturers.

Airlines in developing countries can often be a lucrative but risky market for these firms. Because the countries do not maintain high levels of foreign exchange, it is not unknown, for example, for Rolls (or its competitors) to take partial payment in cash with assorted commodities to pay the balance. Hence, a contract with Turkey’s national airline may lead to some monetary payment for Rolls, along with several tons of pistachios or other trade goods! To maintain their sales and service targets, these jet engine makers routinely resort to creative financing, long-term contracts, or asset-based trading deals. Overall, however, the market for jet engines is projected to continue to expand at huge rates. Rolls-Royce projects a 20-year window with a potential market demand of 70,000 engines, valued at over \$400 billion in civil aerospace alone. When defense contracts are factored in as well, the revenue projections for jet engine sales are likely to be enormous. As Rolls sees the future, the single biggest market growth opportunity is in the larger, greater thrust engines, designed to be paired with larger jet aircraft.

Rolls-Royce is currently engaged in a strategic decision that offers the potential for huge payoffs or significant losses as it couples its latest engine technology, the “Trent series,” with Airbus’s decision to develop an ultralarge commercial aircraft for long-distance travel. The new Airbus design, the 380 model, seats more than 550 people, flying long-distance routes (up to 8,000 miles). The Trent 900, with an engine rating of 70,000 pounds thrust per engine, has been created at great expense to see service in the large jet market. The project reflects a strategic vision shared by both Airbus and Rolls-Royce that the commercial passenger market will triple in the next 20 years. As a result, future opportunities will involve larger, more economically viable aircraft. Airbus’s plan was to introduce the Airbus 380 in 2006, with the first 14 aircraft delivered to 3 customers in 2008. Collectively, Airbus and Rolls-Royce have taken a large financial gamble that their strategic vision of the future is the correct one.

### Questions

1. Who are Rolls’s principal project management stakeholders? How would you design stakeholder management strategies to address their concerns?
2. Given the financial risks inherent in developing a jet engine, make an argument, either pro or con, for Rolls to develop strategic partnerships with other jet engine manufacturers in a manner similar to Airbus’s consortium arrangement. What are the benefits and drawbacks in such an arrangement?

## Case Study 2.2

### Paradise Lost: The Xerox Alto<sup>35</sup>

Imagine the value of cornering the technological market in personal computing. How much would a five-year window of competitive advantage be worth to a company today? It could easily mean billions in revenue, a stellar industry reputation, future earnings assured, and the list goes on. For Xerox Corporation, however, something strange happened on the way to industry leadership. In 1970, Xerox was uniquely positioned to take advantage of the enormous leaps forward in office automation technology it had made. Yet it stumbled badly through its own strategic myopia, lack of nerve, structural inadequacies, and poor choices. This is the story of the Xerox Alto, the world’s first personal computer and one of the great “what if?” stories in business history.

The Alto was not so much a step forward as a quantum leap. In place and operating by the end of 1973, it was the first stand-alone personal computer to combine

bit-mapped graphics, a mouse, menu screens, icons, an Ethernet connection, a laser printer, and word processing software. The result of the combined efforts of an impressive collection of computer science geniuses headquartered at Xerox’s Palo Alto Research Center (PARC), the Alto was breathtaking in its innovative appeal. It was PARC’s answer to Xerox’s top management command to “hit a home run.” Xerox had profited earlier from just such a home run in the form of the Model 914 photocopier, a technological innovation that provided the impetus to turn Xerox into a billion-dollar company in the 1960s. The Alto represented a similar achievement.

What went wrong? What forces combined to ensure that no more than 2,000 Altos were produced and that none was ever brought to market? (They were used only inside the company and at some university sites.) The answer could lie in the muddled strategic thinking that went on at



Xerox while the Alto was in development. The history of Xerox during this period shows a company that stepped back from technological leadership into a form of *incrementalism* that made it content to follow IBM's lead in office automation. Incrementalism refers to adopting a gradualist approach that plays it safe, avoiding technological leaps, large risks, and consequently the possibility of large returns. In 1974 the decision was made to launch the Model 800 magnetic tape word processor rather than the Alto because the Model 800 was perceived as the safer bet. Over the next five years, a series of ill-timed acquisitions, lawsuits, and reorganizations rendered the Alto a casualty of inattention. What division would oversee its development and launch? Whose budget would support it and PARC in general? By leaving those tough decisions unmade, Xerox wasted valuable time and squandered its technological window of opportunity. Even when clear indications showed that competitor Wang was in line to introduce its own line of office systems, Xerox could not take the step to bring the Alto to market. By 1979, Xerox's unique opportunity was lost. No longer was the Alto a one-of-a-kind technology, and the company quietly shelved any plans for its commercial introduction.

The ultimate irony may have been that a company that made its name through the phenomenal success of a highly innovative product, the Model 914 photocopier, did not know how to handle the opportunities presented by the next phenomenon. In short, the Alto was simply so advanced that the company seemed unable to comprehend its possibilities. Executives did not have a strategic focus that emphasized a continual progression of innovation. Instead, they were

directed toward moving head to head with the competition in an incremental approach. That is, when IBM released a new electric typewriter, they did the same. Xerox's organizational structure worked against any one division or key manager becoming the champion for the Alto.

In 1979 Steven Jobs, president of Apple Computer, was given a tour of the PARC complex and saw an Alto in use. He was so impressed with the machine's features and operating capabilities that he asked when it was due to be commercially launched. When told that much of this technology had been developed in 1973, Jobs recounted in his own words that he became "physically sick" at the thought of the opportunity Xerox had forgone.

### Questions

1. Do you see a logical contradiction in Xerox's willingness to devote millions of dollars to support pure research sites like PARC and then its refusal to commercially introduce the products produced?
2. How does Xerox's strategic vision work in favor of or against the development of radical new technologies such as the Alto?
3. How did other unforeseeable events combine to make Xerox's executives unwilling to take any new risks precisely at the time that the Alto was ready to be released?
4. "Radical innovation cannot be too radical if we want it to be commercially successful." Argue either in favor of or against this statement.

## Case Study 2.3

### Project Task Estimation and the Culture of "Gotcha!"

I recently worked with an organization that adopted a mind-set in which it was assumed that the best way to keep project team members working hard was to unilaterally trim their task duration estimates by 20%. Suppose that you were asked to estimate the length of time necessary to write computer code for a particular software product and you determined that it should take about 80 hours. Knowing you were about to present this information to your supervisor and that she was going to immediately cut the estimate by 20%, what would be your course of action? You would probably first add a "fudge factor" to the estimate in order to protect yourself. The conversation with the boss might go something like this:

**BOSS** "Have you had a chance to estimate that coding sequence yet?"

**YOU** "Yes, it should take me 100 hours."

**BOSS** "That's too long. I can only give you 80 hours, tops."

**YOU (THEATRICAL SIGH)** "Well, if you say so, but I really don't know how I can pull this off."

Once you leave the office and shut the door, you turn with a smile and whisper, "Gotcha!"

### Questions

1. How does the organization's culture support this sort of behavior? What are the pressures the manager faces? What are the pressures the subordinate faces?
2. Discuss the statement, "If you don't take my estimates seriously, I'm not going to give you serious estimates!" How does this apply in this example?

## Case Study 2.4

### Widgets 'R Us

Widgets 'R Us (WRU) is a medium-sized firm specializing in the design and manufacturing of quality widgets. The market for widgets has been stable. Historically, WRU has had a functional organization design with four departments: accounting, sales, production, and engineering. It has served the company well and it was able to compete by being the low-price company in the industry.

In the past three years, the demand for widgets has exploded. New widgets are constantly being developed to feed the public's seemingly insatiable demand. The average life cycle of a newly released widget is 12–15 months. WRU is finding itself, unfortunately, unable to compete successfully in this new, dynamic market. The CEO has noted a number of problems. Products are slow to market. Many new innovations have passed right by WRU because

the company was slow to pick up signs from the marketplace that they were coming. Internal communication is very poor. Lots of information gets kicked “upstairs” and no one seems to know what happens to it. Department heads constantly blame other department heads for the problems.

### Questions

1. You have been called in as a consultant to analyze the operations at WRU. What would you advise?
2. What structural design changes might be undertaken to improve the operations at the company?
3. What are the strengths and weaknesses of alternative solutions the company could employ?

## Internet Exercises

1. Wegmans has been consistently voted one of the 100 best companies to work for in the United States by *Fortune* magazine. In fact, since 2005, it was ranked #1. Go to its Web site, [www.wegmans.com](http://www.wegmans.com), and click on “About Us.” What messages, formal and informal, is Wegmans conveying through its Web site? What does the Web site imply about the culture of the organization?
2. Go to a corporate Web site of your choice and access the organizational chart. What form of organization does this chart represent: functional, project, matrix, or some other form? Based on our discussion in this chapter, what would be the likely strengths and weaknesses of this organization's project management activities?
3. Access the corporate Web site for Fluor-Daniel Corporation and examine its “Compliance and Ethics” section at [www.fluor.com/sustainability/ethics\\_compliance/Pages/default.aspx](http://www.fluor.com/sustainability/ethics_compliance/Pages/default.aspx). What does the “Fluor Code of Business Conduct and Ethics” suggest about the way the company does business? What are the strategic goals and directions that naturally flow from the ethical code? In your opinion, how would the ethics statement influence the manner in which the company manages its projects?
  - c. Support the project and resolve resource and other conflicts
  - d. Resolve resource and other conflicts
3. What is an organization that controls project managers, documentation, and policies called?
  - a. Project Management Office
  - b. Strong matrix
  - c. Functional
  - d. Pure project
4. A business analyst has a career path that has been very important to her throughout the 10 years of her career. She is put on a project with a strong matrix organizational structure. Which of the following is likely viewed as a negative of being on the project?
  - a. Being away from the group and on a project that might make it more difficult to get promoted
  - b. Working with people who have similar skills
  - c. Working long hours because the project is a high priority
  - d. Not being able to take her own certification tests because she is so busy.

### PMP Certification Sample Questions

1. What is the main role of the functional manager?
  - a. To control resources
  - b. To manage the project when the project manager isn't available
  - c. To define business processes
  - d. To manage the project manager
2. What is the typical role of senior management on a project?
  - a. Support the project
  - b. Pay for it
5. The functional manager is planning the billing system replacement project with the newest project manager at the company. In discussing this project, the functional manager focuses on the cost associated with running the system after it is created and the number of years the system will last before it must be replaced. What best describes what the functional manager is focusing on?
  - a. Project life cycle
  - b. Product life cycle

- c. Project management life cycle
- d. Program management life cycle

Answers: (1) a—The functional manager runs the day-to-day operations of his department and controls the resources. (2) c—Because senior managers usually outrank the project manager, they can help with resolving any resource or other conflicts as they arise. (3) a—The Project Management

Office (PMO) typically has all of these responsibilities. (4) a—Being away from her functional group may cause her to feel that her efforts on behalf of the project are not being recognized by her functional manager, since the project employs a strong matrix structure. (5) b—The functional manager is focusing on the product life cycle, which encompasses the range of use for the product, developed as a result of a successful project.

# INTEGRATED PROJECT

## Building Your Project Plan

### EXERCISE 1—DEVELOPING THE PROJECT NARRATIVE AND GOALS

You have been assigned to a project team to develop a new product or service for your organization. Your challenge is to first decide on the type of product or service you wish to develop. The project choices can be flexible, consisting of options as diverse as construction, new product development, IT implementation, and so forth.

Develop a project scope write-up on the project you have selected. Your team is expected to create a project history, complete with an overview of the project, an identifiable goal or goals (including project targets), the general project management approach to be undertaken, and significant project constraints or potential limiting effects. Additionally, if appropriate, identify any basic resource requirements (i.e., personnel or specialized equipment) needed to complete the project. What is most important at this stage is creating a history or narrative of the project you have come up with, including a specific statement of purpose or intent (i.e., why the project is being developed, what it is, what niche or opportunity it is aimed to address).

The write-up should fully explain your project concept, constraints, and expectations. It is not necessary to go into minute detail regarding the various subactivities or subcomponents of the project; it is more important to concentrate on the bigger picture for now.

### SAMPLE BACKGROUND ANALYSIS AND PROJECT NARRATIVE FOR ABCUPS, INC.

Founded in 1990, ABCups, Inc. owns and operates 10 injection-molding machines that produce plastic drinkware. ABCups's product line consists of travel mugs, thermal mugs, steins, and sports tumblers. The travel mugs, thermal mugs, and steins come in two sizes: 14 and 22 ounces. The sports tumblers are offered only in the 32-ounce size. All products except the steins have lids. The travel and thermal mugs consist of a liner, body, and lid. The steins and sports tumblers have no lining. There are 15 colors offered, and any combination of colors can be used. The travel and thermal mugs have a liner that needs to be welded to the outer body; subcontractors and screen printers weld the parts together. ABCups does no welding, but it attaches the lid to the mug. ABCups's customer base consists primarily of distributors and promotional organizations. Annual sales growth has remained steady, averaging 2–3% each year. Last year's revenues from sales were \$70 million.

### CURRENT PROCESS

ABCups, Inc.'s current method for producing its product is as follows:

1. Quote job.
2. Receive/process order.
3. Schedule order into production.
4. Mold parts.
5. Issue purchase order to screen printer with product specifications.
6. Ship parts to screen printer for welding and artwork.
7. Receive returned product from screen printer for final assembly and quality control.
8. Ship product to customer.

At current processing levels, the entire process can take from two to four weeks, depending upon order size, complexity, and the nature of current production activity.

### OVERVIEW OF THE PROJECT

Due to numerous complaints and quality rejects from customers, ABCups has determined to proactively resolve outstanding quality issues. The firm has determined that by bringing welding and screen printing functions "in house," they will be able to address the current quality problems, expand their market, maintain better control

over delivery and order output, and be more responsive to customers. The project consists of adding three new processes (welding, screen printing, and improved quality control) to company operations. ABCups has no experience or equipment regarding welding or screen printing. The organization needs to educate itself, investigate leasing or purchasing space and equipment, hire trained workers, and create a transition from subcontractors to in-house operators. The project needs to have a specified date of completion so that the transition from outsourcing to company production is smooth and products can be delivered to customers with as little disruption to shipping as possible.

Management's strategy is to vertically integrate the organization to reduce costs, increase market share, and improve product quality. ABCups is currently experiencing problems with its vendor base, ranging from poor quality to ineffectual scheduling, causing ABCups to miss almost 20% of its customers' desired ship dates. Maintaining complete control over the product's development cycle should improve the quality and on-time delivery of ABCups's product line.

## Objectives

Goals	Targets
1. Meet all project deadlines without jeopardizing customer satisfaction within a one-year project time frame.	Excellent = 0 missed deadlines Good = 1–5 missed deadlines Acceptable = < 8 missed deadlines
2. Deplete dependence on subcontracted screen printing by 100% within six months without increasing customer's price or decreasing product quality.	Excellent = 100% independence Good = 80–99% independence Acceptable = 60–79% independence
3. Perform all process changes without affecting current customer delivery schedules for the one-year project time frame.	Excellent = 0% delivery delays Good = < 5% delivery delays Acceptable = 5–10% delivery delays
4. Decrease customer wait time over current wait time within one year without decreasing quality or increasing price.	Excellent = 2/3 decrease in wait time Good = 1/2 decrease in wait time Acceptable = 1/3 decrease in wait time
5. Stay within 10% of capital budget without exceeding 20% within the project baseline schedule.	Excellent = 1% variance Good = 5% variance Acceptable = 10% variance
6. Decrease customer rejections by 25% within one year.	Excellent = 45% reduction Good = 35% reduction Acceptable = 25% reduction

## General Approach

1. **Managerial approach**—The equipment will be purchased from outside vendors; however, ABCups's internal employees will perform the assembly work. Due to the type of equipment that is required, outside contractors will not be needed because the company's facility employs the necessary maintenance staff to set up the equipment and troubleshoot as required, after the initial training has been supplied by the vendor.
2. **Technical approach**—The equipment manufacturers will utilize CAD to design the equipment. Initially, the firm will require a bank of parts to be available once the equipment arrives in order to fine-tune the machinery. Fixtures will be designed as required, but will be supplied by the machine manufacturer.

## Constraints

1. **Budget constraints**—This project must ultimately increase profitability for the company. In addition, the project will have a constraining budget. It must be shown that any additional expense for both the conversion and producing finished cups on site will result in increased profitability.
2. **Limited plant space**—ABCups is assuming this conversion does not involve building a new plant or significantly increasing facility size. Space for new machinery, new employees, and storage for dyes and inventory must be created through converting existing floor space. If additional floor space is required, leasing or purchasing options will need to be investigated.



3. **Time**—Since this project will require the company to break existing contracts with vendors, any missed milestones or other delays will cause an unacceptable delay to customers. There must be some backup plan to avoid losing customers to competitors in the event that the time frame is not strictly met. The conversion must be undertaken with a comprehensive project scheduling system developed and adhered to.
4. **Safety regulations**—The installation and conversion activities must be in accordance with several agencies' specifications, including but not limited to Occupational Safety and Health Administration (OSHA) guidelines, the insurance carrier, and the financing agency.
5. **Current orders must be filled on time**—All activities must be designed to avoid any delay in current orders. The transition should appear seamless to customers to avoid losing any part of the extant customer base.

## Notes

1. "Project management improves Lenovo's strategy execution and core competitiveness," [www.pmi.org/AboutUs/Pages/case-study-library.aspx](http://www.pmi.org/AboutUs/Pages/case-study-library.aspx)
2. David, F. R. (2001), *Strategic Management*, 8th ed. Upper Saddle River, NJ: Prentice Hall.
3. Cleland, D. I. (1998), "Strategic project management," in J. K. Pinto (Ed.), *Project Management Handbook*. San Francisco, CA: Jossey-Bass, pp. 27–40.
4. King, W. R. (1988), "The role of projects in the implementation of business strategy," in D. I. Cleland and W. R. King (Eds.), *Project Management Handbook*. New York: Van Nostrand Reinhold, pp. 129–39.
5. Grundy, T. (2000), "Strategic project management and strategic behavior," *International Journal of Project Management*, 18(2), 93–104; Van der Merwe, A. P. (2002), "Project management and business development: Integrating strategy, structure, processes and projects," *International Journal of Project Management*, 20, 401–11; Van der Merwe, A. P. (1997), "Multi-project management—organizational structure and control," *International Journal of Project Management*, 15, 223–33.
6. King, W. R., *ibid.*
7. Wheelen, T. L. and Hunger, J. D. (1992), *Strategic Management and Business Policy*, 4th ed. Reading, MA: Addison-Wesley.
8. Wiener, E. and Brown, A. (1986), "Stakeholder analysis for effective issues management," *Planning Review*, 36, pp. 27–31.
9. Mendelow, A. (1986), "Stakeholder analysis for strategic planning and implementation," in W. R. King and D. I. Cleland (Eds.), *Strategic Planning and Management Handbook*. New York: Van Nostrand Reinhold, pp. 67–81; Winch, G. M., (2002), *Managing Construction Projects*. Oxford: Blackwell; Winch, G. M. and Bonke, S. (2001), "Project stakeholder mapping: Analyzing the interest of project stakeholders," in D. P. Slevin, D. I. Cleland, and J. K. Pinto (Eds.), *The Frontiers of Project Management Research*. Newtown Square, PA: PMI, pp. 385–404.
10. Wideman, R. M. (1998), "How to motivate all stakeholders to work together," in D. I. Cleland (Ed.), *Project Management Field Guide*. New York: Van Nostrand Reinhold, pp. 212–26; Hartman, F. T. (2000), *Don't Park Your Brain Outside*. Newtown Square, PA: PMI.
11. Cleland, D. I. (1988), "Project stakeholder management," in D. I. Cleland and W. R. King (Eds.), *Project Management Handbook*, 2nd ed. New York: Van Nostand Reinhold, pp. 275–301.
12. Cleland, D. I. (1988), *ibid.*
13. Block, R. (1983), *The Politics of Projects*. New York: Yourdon Press.
14. Fisher, R. and Ury, W. (1981), *Getting to Yes: Negotiating Agreement Without Giving In*. New York: Houghton Mifflin.
15. Frame, J. D. (1987), *Managing Projects in Organizations*. San Francisco, CA: Jossey-Bass.
16. Grundy, T. (1998), "Strategy implementation and project management," *International Journal of Project Management*, 16(1), 43–50.
17. Cleland, D. I. (1988), *ibid.*
18. Daft, R. L. (2001), *Organization Theory and Design*, 7th ed. Mason, OH: Southwestern; Moore, D. (2002), *Project Management: Designing Effective Organizational Structures in Construction*. Oxford: Blackwell; Yourker, R. (1977), "Organizational alternatives for project management," *Project Management Quarterly*, 8(1), 24–33.
19. Meredith, J. R. and Mantel, Jr., S. J. (2003), *Project Management*, 5th ed. New York: Wiley.
20. Larson, E. W. and Gobeli, D. H. (1987), "Matrix management: Contradictions and insights," *California Management Review*, 29(4), 126–37; Larson, E. W. and Gobeli, D. H. (1988), "Organizing for product development projects," *Journal of Product Innovation Management*, 5, 180–90.
21. Daft, R. L. (2001), *ibid.*; Anderson, C. C. and Fleming, M. M. K. (1990), "Management control in an engineering matrix organization: A project engineer's perspective," *Industrial Management*, 32(2), pp. 8–13; Ford, R. C. and Randolph, W. A. (1992), "Cross-functional structures: A review and integration of matrix organization and project management," *Journal of Management*, 18, pp. 267–94.
22. Larson, E. W. and Gobeli, D. H. (1987; 1988), *ibid.*; Engwall, M. and Kallqvist, A. S. (2000), "Dynamics of a multi-project matrix: conflicts and coordination," Working paper, Chalmers University, [www.fenix.chalmers.se/publications/2001/pdf/WP%202001-07.pdf](http://www.fenix.chalmers.se/publications/2001/pdf/WP%202001-07.pdf).
23. Wheelwright, S. C. and Clark, K. (1992), "Creating project plans to focus product development," *Harvard Business Review*, 70 (2), 70–82.
24. Gobeli, D. H. and Larson, E. W. (1987), "Relative effectiveness of different project management structures," *Project Management Journal*, 18(2), 81–85; Gray, C., Dworatschek, S., Gobeli, D. H., Knoepfel, H., and Larson, E. W. (1990), "International comparison of project organization structures," *International Journal of Project Management*, 8, 26–32.

25. Gray, C. F. and Larson, E. W. (2003), *Project Management*, 2nd ed. Burr Ridge, IL: McGraw-Hill; Dai, C. (2000), *The role of the project management office in achieving project success*. Doctoral dissertation, George Washington University.
26. Block, T. (1998), "The project office phenomenon," *PMNetwork*, 12(3), 25–32; Block, T. (1999), "The seven secrets of a successful project office," *PMNetwork*, 13(4), 43–48; Block, T. and Frame, J. D. (1998), *The Project Office*. Menlo Park, CA: Crisp Publications; Eidsmoe, N. (2000), "The strategic project management office," *PMNetwork*, 14(12), 39–46; Kerzner, H. (2003), "Strategic planning for the project office," *Project Management Journal*, 34(2), 13–25.
27. Casey, W. and Peck, W. (2001), "Choosing the right PMO setup," *PMNetwork*, 15(2), 40–47.
28. Kerzner, H. (2003), *Project Management*, 8th ed. New York: Wiley; Englund, R. L. and Graham, R. J. (2001), "Implementing a project office for organizational change," *PMNetwork*, 15(2), 48–52; Fleming, Q. and Koppelman, J. (1998), "Project teams: The role of the project office," *Cost Engineering*, 40, 33–36.
29. Schein, E. (1985), *Organizational Culture and Leadership: A Dynamic View*. San Francisco, CA: Jossey-Bass, pp. 19–21; Schein, E. H. (1985), "How culture forms, develops and changes," in Kilmann, R. H., Saxton, M. J., and Serpa, R. (Eds.), *Gaining Control of the Corporate Culture*. San Francisco, CA: Jossey-Bass, pp. 17–43; Elmes, M. and Wilemon, D. (1989), "Organizational culture and project leader effectiveness," *Project Management Journal*, 19(4), pp. 54–63.
30. Kirsner, S. (1998), "Designed for innovation," *Fast Company*, November, 54, 56; Daft, R. L. (2001), *ibid.*
31. Kilmann, R. H., Saxton, M. J., and Serpa, R. (1985), *Gaining Control of the Corporate Culture*. San Francisco, CA: Jossey-Bass.
32. *Fortune* (1989), "The US must do as GM has done," 124(2), pp. 70–79.
33. Lane, K. (2003), "Always plan for success," *Project Manager Today*, 15(1), 4–8.
34. Staw, B. M. and Ross, J. (1987), "Knowing when to pull the plug," *Harvard Business Review*, 65 (March–April), 68–74.
35. Smith, D. K. and Alexander, R. C. (1988), *Fumbling the Future: How Xerox Invented, Then Ignored, the First Personal Computer*. New York: Macmillan; Kharbanda, O. P. and Pinto, J. K. (1996), *What Made Gertie Gallop?* New York: Van Nostrand Reinhold.